



Replacing Roaming Profiles with ProfileUnity™

User Virtualization Solution Addresses Common Issues and Paves the Way for Next-Generation Desktops

Whitepaper

INTRODUCTION

This whitepaper has been authored by experts at Liquidware Labs in order to provide guidance to adopters of desktop virtualization technologies. In this paper, we outline how ProfileUnity was designed to address many of the shortcomings of Roaming Profiles in managing user profiles over multiple desktop platforms, including physical upgrades, and virtual desktops.

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OVERVIEW

Today, many desktop virtualization projects are relying on Microsoft's Roaming Profiles in order to support user personalization. However, administrators find that Roaming Profiles generally falls short due to several factors. Microsoft Roaming Profiles does not support a mixed operating environment, therefore it does not allow users to move between experiences with an operating system in a version one (v1) profile format (XP, 2000, Server 2003) to one with a version two (v2) profile format (Vista, Win 7, and Server 2008). The fact that a v1 to v2 movement is not supported actually makes Roaming Profiles a hindrance when upgrading operating systems. Roaming Profiles also allows for very little granular management, eliminating the ability to exclude bloated areas of a user profile. Profile bloat is one of the number one reasons for long logon times in Windows.

Most organizations who will upgrade from a previous Windows® OS, such as Windows XP, to Windows 7, will want to move at their own pace and upgrade machines on a departmental or 'as needed' basis. Microsoft profiles and migration become a huge challenge for these environments because neither is seamlessly supported or functional between the two operating systems.

Virtual desktops have been introduced as answer to solve the instability issues that are inherent with traditional PCs. Virtual desktops have been touted as a way to serve up a pristine machine every day to your end users therefore eliminating virus, corruption, and the overall software maintenance that traditional are faced with. However, most users wish to keep their personalization – as an enhancement to productivity – and want to log in daily to desktops with their specific profiles and data, as well as all the applications they need.

A user's profile consists of nearly everything needed to provide a personalized user experience within Windows. If one could separate out the user profile from Windows several advantages can be realized:

- Persistency can be created for environment where workers roam from PC to PC
- Users can migrate from one OS to the next making OS upgrades easy and largely a non-issue point-in-time upgrade.
- Integral settings can be readily restored in the event of a PC failure or loss (disaster recovery)

Therefore desktop virtualization adopters – and actually anyone who is looking to upgrade their Windows operating system – are looking for better ways to manage their user profiles across desktop platforms. In this whitepaper, we will cover the issues inherent with Roaming Profiles and how ProfileUnity addresses these issues.

RETAINING USER PROFILES WHEN MIGRATING TO NEW PLATFORMS

It's been cited by many thought leaders and gurus in the market and, many companies will affirm the statement, "It's all about the users." If your users are not happy, management and admin is not happy. At the heart of desktop user satisfaction is the user's profile.

Traditionally, a Windows user gets a new desktop and a login to a corporate domain and, over time, builds a customized user profile along with settings designated by a system administrator. These settings include MAPI profiles, drive and printer mappings, application-level customized settings such as spell checkers and custom languages, desktop wallpaper, Outlook signatures, and a whole lot more. These profiles are built over countless man-hours and under real-world working conditions that make a desktop optimized for the user and the user's specific work task. This optimization is key to user productivity as they have all the tools and information at their command for the work at hand.

Unfortunately in the physical world, nearly all of these settings are completely ignored and usually totally lost when migrating from one OS to another. This loss is very counter-productive and usually leads to a host of problems including irritated and dissatisfied users and a significant increase in man-hours to recreate settings and lost work. These issues can quickly turn an otherwise well thought out migration strategy into a dismal failure.

What many IS planners don't know is that there are new methods to completely separate Windows profiles from the OS and platform altogether. All the countless man-hours and customization put into user profiles need not be lost in migration or spread over multiple Windows sessions in a disorganized manner. User profiles can now be managed completely independent of the OS experience and rejoined with whatever active Windows session the user launches....within seconds at logon.

INCOMPATIBILITY BETWEEN WINDOWS VER. 1 AND VER. 2 USER PROFILES

With the launch of Windows Vista Microsoft changed the file locations and names within the Windows user profile. This same format is now used in Windows 7 and Server 2008. The industry is now calling these Version 1 profiles for Windows XP/2000/Server 2003 and Version 2 profiles for Windows Vista/7/Server 2008. For this section we'll also refer to these as Version 1 and Version 2 profiles. See Figure 1 and Figure 2 below for detail.

Please refer to these two screen captures from a Windows XP profile vs. a Windows 7 profile to view the incompatibilities of changed folder names:

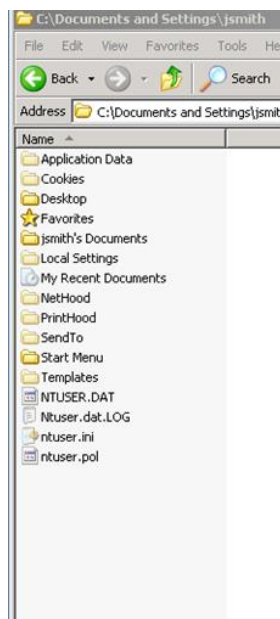


Figure 1: Windows XP Profile (Windows Version 1) for jsmith

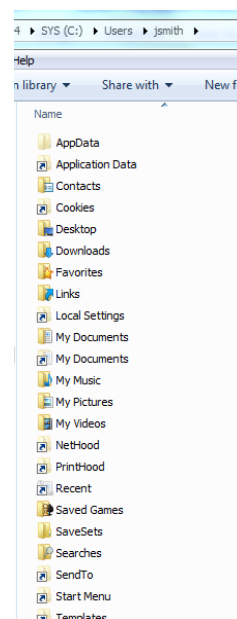


Figure 1: Windows 7 Profile (Windows Version 2) for jsmith

Version 1 profiles are not compatible with Version 2 profiles mainly due to name and location changes in the user profile folder. One prime example of file name changes in the user profile is the "Application Data" folder in a Version 1 profile. This folder is now called "AppData" in a Version 2 profile. This folder is of great importance to the user's profile because it is where applications write unique user settings that make a user more productive. Spellcheckers, email signatures, and bookmarks are examples of user personalized data. Other folders are of equal significance. If these personalized folders are lost to incompatibility you not only risk losing mission critical data but also user productivity in the time it takes to recreate these settings.

Microsoft has made no straightforward offering for migrating users en masse or allowing both operating system types to co-exist in an environment for single users. Roaming profiles also have no provision to make the two types compatible or to exchange information between them. If you were to use Microsoft Roaming Profiles in a mixed environment two separate profiles would be stored and used by roaming profiles for the users, one in Version 1 format the other in Version 2 format. This technique is of no benefit to most organizations.

PROFILEUNITY ADDRESSES USER PROFILE INCOMPATIBILITY

ProfileUnity can harvest Version 1 or Version 2 user profiles from your current installation of local profiles or from Microsoft Roaming Profiles. With ProfileUnity either type of profile is backed up to the user's network share at logoff. The information is not compiled into a database or other proprietary system. Upon next user login, ProfileUnity communicates with the OS to determine the required profile format. In literally seconds, ProfileUnity implements the user's unique profile on that OS in the proper format, regardless if it is a Version 1 profile or Version 2 profile. All of this is seamless to the end-user. A user profile in the proper format is actually placed on the local or virtual desktop. No agent software translates the profile from a data store but rather the profile is placed on the system in Windows' own native format.

PROFILE BLOAT SLOWS LOGINS; CONSUMES STORAGE

Profile Bloat is one of the main reasons that login times grow substantially over time. By default, Windows profiles store most everything that makes a PC or virtual desktop personal to the user into their specific profile. The following are common practices that contribute to Profile Bloat:

- User Authored Data Folders are large: My Documents, My Pictures, My Music, etc. can reach gigabytes in size if left unchecked.
- Third-party vendor applications storage methods: Some third-party applications store unnecessary caches and other temporary files in the user profile. Three common culprits are Internet applications Temp files, Adobe Acrobat caches, and Sun's Java cache folder.
- Local email files: Locally stored PST, and local OST files can easily become gigabytes in size if left unchecked or best practice guidelines are not mandated and enforced.

PROFILEUNITY ADDRESSES PROFILE BLOAT

With redirects, ProfileUnity can offload all of the "user authored" file storage in the profile. ProfileUnity can work with redirects you already have set up or it can create these on users' desktops for you. This method alone will reduce most profiles in size significantly.

Network folder redirection of certain user profile folders is the practice of administratively setting the users' desktops to look to a central location, such as their networked file share, to save and access certain data. When organizations want to streamline profiles Microsoft even offers a best practice tip to redirect user authored folders to a network location.
Folder redirection

Here is an excerpt straight from Microsoft's "User Profiles Best Practices" document:
"Redirect the location of the My Documents Folder outside of the users Roaming Profile.
To decrease initial logon time to a new computer, it is recommended that you redirect the location of the My Documents folder outside of the users roaming profile. The best way to do this is with Folder Redirection."

With redirected folders for the "Save As" and "Open" command as well as automatic shortcuts back to the redirected network folder, end-users may hardly notice they are being redirected at all. Users generally experience a seamless transition to the redirected method with ProfileUnity. (See also section on User Authored data migration with ProfileUnity in this White Paper)

To further combat Profile Bloat, ProfileUnity provides for granular management of users' profiles with the profile portability administrative feature set of the ProfileUnity console. ProfileUnity can be set to solve common problems that cause bloat including, eliminating cached files in the Internet application folders, automatically dump deleted items from email, and ignore cached files in the Sun Java and Acrobat application settings folders.

To keep other sizeable data out of the user profile folders, we recommend that your organization also establish corporate standards for storing PST and local OST files in another area other than the user's profile.

Automatically combating profile bloat with ProfileUnity and best practice techniques will offer you huge rewards in speeding up login times; helping to ensure a consistent disaster recovery methodology and can also lower your storage needs and costs.

Even after the profile size is reduced, ProfileUnity further compresses the transfer and network storage of the user profile that is left. It is compressed in a ratio that is up to 50:1.

MANAGING USER AUTHORED DATA

Obviously not every organization starts out using Microsoft's best data storage practices of redirecting user authored data to users' networked file shares. Very often, much user-authored data remains on the local drive. To complicate matters, data on the local drive very often is business or mission critical data that would cost your organization man hours to recreate if lost in a migration.

If you decided tomorrow that all user-authored data had to be moved to the users' network file share, you would only have a couple of approaches to choose from in order to complete this task. One is for the administrator or the user to drag and drop their data over. This is a time-consuming and haphazard method. Another approach – using a file synchronization tool -- would require a separate roll-out, and budget. This approach is not feasible if the budget or time to implement is not there.

However, ProfileUnity includes an innovative built-in feature to automate migrations of user-authored data.

PROFILEUNITY AUTOMATES MIGRATION OF USER AUTHORED DATA

ProfileUnity has a specific data migration feature to move user authored data to the users' soon to be redirected folders on the network. The feature can be set to run in the background prior to a migration or profile streamlining project. Built-in throttling lets administrators choose a data transfer speed that will not impact network performance so data can be trickled up to the new location over time. It is recommended that you turn on this feature two weeks prior to folder redirections/or your new Windows environment going live. This duration will give ample time for the data migration to occur. Best of all, this process happens in the background and the user is not affected at all. Once the migration is complete, the user then seamlessly accesses their user authored files in the redirected location.

USER PROFILE CHALLENGES FOR VIRTUAL DESKTOP ENVIRONMENTS

Virtual desktop environments such as VMware View and Citrix Desktop provide for a rock-solid way to offer up a stable Windows operating system experience. They achieve this by offering the ability to deliver a consistently formatted desktop OS session to the user at login. Such a desktop is not encumbered by any user or virus induced problems that may have been carried over from the session before. The only problem this creates is that user persistency (profiles, settings, etc.) also do not carry over to the next time the user logs in to the network.

It should be noted that there are methods for delivering a persistent experience in these environment but very few are elegant in design. VMware offers a user data disk option when you offer "persistent" desktops. This disk separately stores profile information unique to the user that is rejoined with a pristine session at login. However, this method is known to have a few drawbacks including dependency on a separate disk and storage (size and limitations), and incompatibilities when upgrading from Windows XP to Windows 7. Citrix XenDesktop also offers

a solution for user persistency in its Citrix UPM (user profile management) solution for enterprise-level customers but it too does not support both upgrades and co-existence from Windows XP to Windows 7.

It is for these main reasons that customers and users of any vendor are left longing for all of the benefits of a non-persistent virtual desktop environment with all the personalized benefits of a persistent environment.

PROFILEUNITY OFFERS USER VIRTUALIZATION FOR VIRTUAL DESKTOP ENVIRONMENTS

ProfileUnity solves persistency/non-persistency debates by giving customers and users the best of both worlds. By using ProfileUnity, VMware and Citrix based virtual desktops can be offered in non-persistent mode with in-depth personalization and administrative settings pulled into the session within seconds at logon. ProfileUnity seamlessly supports migrations and co-existence between Windows XP and Windows 7 desktops. ProfileUnity also enables organizations to harvest existing desktop profiles from any Windows environment and make them immediately available within a virtual desktop environment. The approach make user migrations occur in seconds at logon, enables organizations to run non-persistent desktop with personality for users, and centralizes the management of administration and user settings provisioning.

PROFILEUNITY SUPPORTS WORKERS WHO ARE OCCASIONALLY OFFLINE

When ProfileUnity runs at login, it literally places the user's latest known good profile on that Windows laptop or PC. If ProfileUnity does not run because the user is offline the latest profile on the machine is still valid. When the user once again connects ProfileUnity performs a time and date check to synch up the PC with the user's most recent profile changes and ProfileUnity administrative defined settings. Using this method and Microsoft's Offline Folder and File settings, the user always has access to their latest user profile, ProfileUnity administrative settings, and their entire user authored files that would have otherwise been accessed with folder redirects.

COMPARISON OF PROFILEUNITY TO OTHER PROFILE MANAGEMENT APPROACHES

There are a few Windows profile solutions that have emerged in recent years to tackle part or the entire management of user profiles across platforms. For the purposes of comparison we've broken out profile solutions into three categories:

- **Managed Profiles** – solutions that are capable of managing the entire contents of the user profile from admin settings to portability;
- **Streamed Profiles** – solutions which are dependent on a constant network share and traffic to pull across portions of a user profile as needed;
- **Roaming Profiles** – Microsoft's existing profile portability solution that pulls across the entire profile at logon.

Key differences in these technologies are the ability to adjust for:

- *Configurability* - how much control an administrator has over the portions of a profile made portable
- *Logon times* – how much impact a portable profile has on logon times
- *Profile Compatibility* – how compatible is the solution to legacy and future Windows operating systems.

Liquidware Labs: Solving the User Profile Dilemma with ProfileUnity

The table below shows the tradeoffs encountered when using different types of profile management techniques.

	<u>Managed Profiles</u> example: Liquidware Labs <i>ProfileUnity</i>	<u>Streamed Profiles</u> example: Citrix UPM	<u>Roaming Profiles</u> example: <i>Microsoft Roaming Profiles</i>
Network Storage Space	Small	Large	Large
Network Traffic	Light	Heavy	Heavy
Logon Times	Fast	Fast	Slow
Configurable based on application and other variables	Fully configurable	Not configurable	Not configurable
Profile Compatibility between OS versions (32bit/64bit & Windows 2000 through Windows Vista/Windows 7)	Fully supported	Not recommended	Not recommended
Profile Provisioning settings - Can map drives, printers, create MAPI profiles, automate desktop admin tasks	Yes	No	No
Zero client foot print	Yes	No	Yes

From the table above you can see that some profile solutions are not acceptable for migration strategies or in cases where you want multiple Windows OS versions to co-exist for users. For instance, Streaming Profile solutions are generally not compatible from one Windows OS to the next, while a Managed Profile solution may be ideal for the task since some support multiple OS versions for seamless migrations or back-and-forth profile compatibility.

Likewise, logon times are not the same for each technology. Microsoft Roaming Profiles, for instance, is known to impact user login times dramatically since the entire user profile is transferred during logon. Solutions like ProfileUnity accomplish quick logins by incorporating 7zip compression technology, and because it supports granular configuration of profiles, by controlling the portion/size of the user profile that is made portable.

Some solutions are also limited in the area of profile provisioning (i.e. creating new or modifying existing user settings). Streamed Profile solutions and standard Roaming Profiles typically cannot accomplish administrator-related profile provisioning tasks such as automated MAPI profile creation, the mapping of drives and printers, etc. Instead these solutions rely on additional solutions such as the limited capabilities in Windows 2008 Group Policy preferences to try to manage such settings separately. On the other hand, comprehensive managed user virtualization solutions like ProfileUnity are an all-in-one profile management solution that can both provision user profile settings and make personal user profile settings completely portable.

A final point to consider about the comparison above is client footprint. Some profile solutions, like Streamed Profiles, mandate that additional software be installed on each client (physical or virtual). This requirement creates additional administrative and licensing measures that can be counter-productive to any planned migration and ongoing management of clients. Solutions such as Microsoft Roaming Profiles and user virtualization solutions like ProfileUnity do not use any additional client installed software (zero client footprint) which makes for expeditious roll-outs without additional licensing issues or per client software installation.

PROFILE UNITY PROVIDES EASY, AFFORDABLE IMPLEMENTATION

ProfileUnity can easily be integrated into any desktop environment in about 30 minutes. Some additional time is required to fully customize the solution to your specific environment and needs.

Other solutions on the market can take weeks to install because of their dependency on added equipment and costs and complexity such as reliance on SQL and IIS Servers. ProfileUnity simply relies on existing secure file shares to provide data migration, profile portability, and complete user environment management. With ProfileUnity there is no software or agent to install on any desktops or VMware View images. A 3mb executable, centrally located on a server such as the Domain Controller, is all that is needed. The ProfileUnity executable is run by the user's Windows session at logon and again at logoff with straightforward Group Policy logon and logoff settings. No agent runs during the Windows session and therefore RAM and CPU usage is not impacted. ProfileUnity was designed specifically for heterogeneous environments. The solution seamlessly supports migrations, profile delivery, and full user environment on any Windows session, including XP, 2000, Server 2003, Server 2008, Vista, and Windows 7. The solution can also support any Windows virtual desktop delivery method and can therefore migrate organizations from competing virtual or physical desktop platforms to VMware View.

ABOUT LIQUIDWARE LABS

Founded in 2009, Liquidware Labs™ is the leader in desktop transformation solutions for next-generation physical and virtual desktops, including VMware View, Citrix XenDesktop, and Microsoft Windows 7. The company's Stratusphere™ and ProfileUnity™ solutions have been described by analysts as the industry's first 'On-Ramp to VDI,' providing a complete methodology and software that enables organizations to decouple users and applications from the operating system and to cost-effectively assess, design, migrate, and validate the user experience for next-generation desktop infrastructure. Liquidware Labs products are VMware and Citrix certified, and are available through a global network of certified partners. Visit www.liquidwarelabs.com for further information.