

A high-angle photograph of a paved plaza. In the foreground, a woman with curly hair, wearing a light-colored jacket and a patterned skirt, is walking and looking down at her smartphone. In the background, a man in a dark suit is sitting on a curved stone ledge, also looking at his phone. The ground is made of light-colored rectangular tiles.

# What are your options when performing a Windows migration?

Shawn Bass and Dr Bernhard Tritsch review the different approaches you can take, the advantages and disadvantages of each and which is most suitable for your environment.

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I am an independent consultant based in the Chicago area. I have been working with Citrix technologies since the WinView product days. Most of my clients are Fortune 500 companies primarily in the Financial Services and Insurance markets. After spending a long time lurking on a variety of forums and learning from others, I decided it was time to give back. I got involved trying to help the server based computing community in February, 2005. Since that time I've become an active poster on various support forums. Read me on Brianmadden.com (over 2000 posts) and on the official Citrix Support Forums (approx 1000 posts), and on AppVirtGuru.com (approx 300 posts). I have also presented sessions at numerous technical conferences worldwide. And, finally I bring all my years of experience and technical expertise to the classroom. I teach a five day Advanced Citrix Training class in cities across the U.S. and Europe throughout the year. Click for more information and how to register. In July 2006, I was recognized by Citrix as an inaugural member of their Citrix Technology Professionals program. I was re-awarded the CTP for 2007 - 2010. In July 2008, Microsoft awarded me with an MVP award for Terminal Server. I was re-awarded the MVP for 2009 - 2011.

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I am Technical Director at AppSense, an independent software vendor providing products for user virtualization. My professional role is a blend of technology evangelist, IT system architect, market analyst, author and Windows system developer. Over the last years, I have published many technical articles and several best-selling books, such as "Microsoft Windows Server 2003 Terminal Services" (Microsoft Press). I am a frequent speaker at leading international events. I have received the Microsoft Most Valuable Professional (MVP) award for Remote Desktop Services in each year since 2004. In 2006 I was a charter award winner of the Citrix Technology Professional (CTP). I hold an equivalent to a PhD in Computer Science from the Technical University in Darmstadt (Germany) and an equivalent to an MSc in Physics from the University in Freiburg (Germany). If you want to know more about me check out my biography and the list of my public presentations.

# Introduction



Microsoft will end support for Windows XP in April 2014 which means that enterprises need to migrate to Windows 7 quickly or lose support for one of the most important technologies in the enterprise desktop environment. Many organizations may have started their migrations but for those who have not the clock is ticking loudly.

This whitepaper looks at the options for businesses planning and deploying a Windows 7 migration and the pros and cons of each depending on the type and complexity of the install base as well as all important end user considerations.

One of the most important requirements of a Windows 7 migration is the retention of user-specific information across the migration so that users get the same applications and desktop personalization they had incorporated under Windows XP.

However not all migration options provide this seamlessly or easily and this must be considered as part of your migration strategy.

When considering migration to Windows 7 there are three basic options to consider:

1. **You can start again – effectively losing everything that was invested into your current XP environment**
2. **Use free migration tools - in an attempt to manually save some user settings**
3. **Take an employee centric approach - taking advantage of advanced virtualization technologies to fully migrate a user and their settings.**

Each one has its advantages and disadvantages as the following sections make clear.

## 1 Start again with a clean install

This might be described as the “nuclear” option, whereby IT managers simply wipe all existing Windows XP settings on every desktop by installing the new OS individually. This does, however, have the prime advantage for IT when providing a clean install as desktops are all standardized,” from each machine which may be attractive in some environments.

However the main disadvantage, in an increasingly individualistic business environment is that it wipes all personalized settings in Windows such as custom Microsoft Word dictionaries, Outlook settings plus all personal files and apps left on the Windows XP desktop. Much of this data is actually important to users and their productivity. But is also where users and IT managers differ in attitude.

There are ways to incorporate personalized settings and data, but they undermine the speed and simplicity of the Start Again approach. In a nutshell this approach is ideal for those businesses which are low in complexity, probably small seat environments where management can afford to (and get away with) expecting users to rebuild their own settings after migration which actually puts a deal of technical responsibility onto the user as well as frustrates those users who expect their previous settings to be present immediately under Windows 7. In larger enterprises there are few employees who will welcome trying to rebuild their settings from memory.

Another consideration is whether to use the migration as an opportunity to upgrade Office applications at the same time. For organizations both large and small this may be too much at once; a strain on IT resources as well as users who have to deal with the changes in UI across major applications as well as the new OS. And of course some users may prefer using existing apps.

In the “start again” approach there is little room for flexibility.

Technically, a clean install is simple to achieve and therefore attractive to smaller, less complex organizations and can be done with fewer resources and advanced IT management but needs to be balanced against user dissatisfaction. However while this benefits IT in the migration stage by reducing their workload, the opposite will happen post migration where the IT service team become over stretched trying to react to new client side support and training for users who do not have their settings or know how to apply them in Windows 7.

Cost is an issue as well. How much will the investment in Windows 7 cost on its own, can the organization afford investment in new generation apps as well? Again, it depends on size, budget and resources for each organization. The technical expertise available within the organization is an important factor.

Additional infrastructure components within the organization such as virtualization or cloud based services may also veto this option. Ultimately the start again option works best for smaller, less complex organizations with a user base happy and willing to tolerate the loss of personalization. If you do opt for this option then it is wise to move what user settings you can before you migrate the OS.

### Advantages:

Low cost, easy to configure manually, can be phased in across the organization, provides a clean slate

### Disadvantages:

Disgruntled users, manual IT workload, higher support and training costs, potential loss of applications and data, lack of flexibility, no roll back options

## 2 Using free migration tools

This option is for all organizations that understand the productivity impact and post-migration support cost produced by the “start again” approach outlined in the first section. But still it is not a purpose built enterprise migration solution.

It enables IT departments to migrate some of the user's settings and data to the new OS. The advantage here is that migration tool licensing costs can be kept down to a minimum with respect to purchasing migration technologies, however larger operational costs may be incurred as the free solutions do require a level of manual IT intervention and workload which may not be available in smaller organizations.

Another downside is that free migration tools are limited in scope. While they fulfil the migration functions they may not provide the flexibility needed for larger, more complex organizations such as the ability to enable users to both roam forward from Windows XP to Windows 7, but also as important in enterprise environment, to have backwards compatibility to go freely from Windows 7 back to a Windows XP desktop, and may still not solve the post migration support issues in a transitional migration.

Planning and auditing needs to be done carefully beforehand to ensure the tools are right for the job and that the organization can assess what will not be migrated and make decisions based on whether this is acceptable to the functioning of the business. The degree of technical expertise needed to use the tools needs to be considered and the environment in which they will be deployed. Depending on how the organization delivers the Windows desktop, applications and data will impact on the choice of tools, as some (free) tools may not be compatible. A search of the internet will provide listings of free or very inexpensive tools, but there is no guarantee that these will work in complex environments.

Two of the most popular tools are available from Microsoft:

### User State Migration Tool (USMT)

According to Microsoft, USMT is able to transfer user accounts, (some) operating system and application settings with a “scriptable command-line tool that provides a highly customizable user-profile migration experience for IT professionals”. It is expressly designed for large-scale, automated deployments that don't require machine-by-machine customization - which is a major disadvantage in the age of highly customized desktops, user settings and users using different versions of Windows on multiple endpoint devices. There are many ways to deploy USMT and Microsoft provides guidance on different scenarios and strategies. A major downside of USMT is its complex command line interface which requires expert IT support, either in-house or outsourced to complete a successful migration. Other disadvantages are that there is no way back from Windows 7 to Windows XP - it is a one way upgrade and lacks flexibility.

### Microsoft Deployment Toolkit (MDT)

This is a console based application with tools and guidance to help manage deployment of Windows 7 which automates much of the process of installation and configuration. It is becoming more sophisticated with a new beta feature called Physical to Virtual (P2V) Migration which automates conversions of desktops, and additionally allowing movement of a user environment to Windows 7 (utilizing USMT). Like USMT however, advanced IT expertise is required to use MDT and used on its own it cannot transfer of personalized settings across the migration.

#### Disadvantages:

Rigid approach, not ideal for complex environments, technical expertise needed may be out of reach for smaller organizations, migrating user personalization and apps is complicated and not robust. No backwards compatibility from Windows 7 to XP. Not designed for phased-migrations

#### Advantages:

Moderately cost effective, speeds migration across larger organizations, suitable for “big-bang” one-way migration

### 3 A people-centric approach with user virtualization

The first two approaches to Windows 7 migration have advantages and disadvantages primarily around user satisfaction, technical complexity, resources and productivity.

The third option takes a far more contemporary and joined up approach to business computing as it recognizes the most important resource in any organization is content and efficient employees. Ideally, business technology should serve employees rather than the other way around. Therefore a Windows 7 migration that is scalable, maintains personal settings and desktops robustly is highly desirable, especially if it can be achieved cost effectively and is easy to configure.

The goal should be a Windows 7 migration where users see no change to their apps or personal settings after the upgrade.

A user should be able to login and be productive straight away. The user does not need to know whether the desktop is real or virtual as long as it functions as before and lets them get on with their tasks. And that is the key to a “people centric approach” that makes use of state-of-the-art virtualization technology which provides the necessary migration, and subsequently manage all aspects of the user settings independent of the move to Windows 7 by storing them centrally. After migration these settings can then be applied to any new Windows 7 desktop when the individual user logs on.

Major advantages of this approach are significantly reduced time, cost and complexity of any migration as it automates so much of the process without significant technical knowledge required behind the scenes and is suitable for organizations of any size. For example the process can be applied without interruption to daily business by operating in the background and provide a seamless user experience. It also allows greater flexibility in that not all seats have to be converted to Windows 7 and that Windows XP or Windows Vista can co-exist among the migration if certain users require it.

The key to user virtualization is the separation of the user from a physical device, essentially making the user transparently portable between devices, irrespective of the operating system version. The settings for any employee are redirected from being read or written on at their original physical registry, file and system locations to a new virtualized area. This abstracts all the settings and applications from their existing Windows XP desktop and stores the information separately. This information can then be reapplied back to the new Windows 7 desktops, making a fast, cost effective and user-centred migration to Windows 7.

There are also significant time efficiencies by taking this approach. For example, by deploying the AppSense user virtualization approach, IT departments can expect to migrate up to three times as many desktops per day using the same level of IT resources. This can also take place without any disruption to users.

Further, there is a degree of future proofing available via user virtualization which neither of the other migration approaches can offer - any future migration means going through the same laborious steps again. Migration to Windows 8 will be cheaper and easier now that users have already been virtualized.

With this approach the expansion of both existing and future desktop and application investments is enabled, making the distinction between ‘physical’ and ‘virtual’ PC irrelevant and enables much more efficient use of IT resources and contributes to a happier work force.

#### Advantages:

Total user satisfaction, lower management costs, thin client efficiencies, works in complex operating environments, future proofs future migrations, enables new desktop delivery methods, embraces future enterprise consumerization trends such as Bring Your Own Device

#### Disadvantages:

Can be costly for smaller enterprises, need to train IT in virtualization

# Windows 8 and beyond

Enterprises tend to fall behind Microsoft's Windows development cycle, waiting (often several years) for bugs and glitches to be ironed out before migrating to a new OS.

Currently there is a lot of buzz around Windows 8, due for release in the 4th quarter of calendar year 2012. Its major feature is a radical, touch friendly graphical interface which is familiar from Windows Phone 7. This release is aimed largely at the consumer market and it remains debatable how long it will show up in corporate environments aside from secondary device tablet usage.

The good news is that when businesses make the switch (and it may be in response to employee demands), the differences are largely graphical and that the underlying OS remains Windows 7. Even better, a virtualized environment will make it simple to switch desktops to Windows 8. Of course its not just about desktops and operating systems. Other initiatives such as application virtualization, cloud computing and bring your own device are just around the corner. User virtualization can help organize, simplify, and remove cost from these projects, further reducing on-going operational spend and improving the user experience.

## References

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