

Windows XP End of Life

A Guide For Migrating From Windows XP to Windows 7 or Windows 8

Brought to you by: TechTarget Editorial Staff

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Introduction

More than 12 years after its release, Windows XP is at the end of its life, at least in terms of support. Microsoft has released a few operating systems since then but many organizations have stuck with XP. For one thing, Vista was as unpopular as XP is popular. Also, most older computers just don't have the guts, hardware-wise, to run the newer Microsoft systems. Whatever the reasons, though, support is ending and if you're running XP, you're going to have to move, make some major changes or pay the price. To the rescue: Our guide to XP end of life and Windows 7 / Windows 8 migration.

Options for Windows XP's End of Life

Windows XP is gone for good on April 8, 2014, about 12 1/2 years after it was first released. Considering how quickly the computing market changes, it's pretty impressive that Microsoft's operating system endured for so long.

In this era of reduced budgets and staffing, you might have been putting off an [operating system refresh](#). But you can't wait much longer. By the spring of 2014, [Windows 7](#) will be almost 5 years old, Windows 8 may be a few years young, and you certainly aren't staying the same age.



Here are four directions you can take.

1. Start your Windows 7 migration planning *now*.

If you never migrated to Windows Vista, this may be good thing. Windows 7 is widely acknowledged to be a fine, stable operating system, and its [first service pack was just released](#). Once XP reaches end-of-life status, Microsoft will provide only [critical security fixes](#); you won't be able to contact the company for help, and there won't be any more service packs.

Times change, applications change, and if you're not looking at moving to a more modern OS, you should make it a priority.

2. Consider application virtualization for stubborn legacy programs.

We all know of those line-of-business programs around which we've built an entire organization, such as the one from 1997 with no updates that simply refuses to work on Windows Vista or Windows 7, even with compatibility shims.

The good news is that there are ways to allow these applications to run in their own legacy operating systems and be delivered alongside a more modern platform like Windows Vista or Windows 7. [Microsoft's App-V](#) technology is one such product, and others are available from Citrix and other [application virtualization](#) providers. This way, you can continue running your stubborn app in a “legacy sandbox” and still get the benefits of a more contemporary -- and supported -- OS for everything else.

3. Plan for a hardware refresh.

As you might imagine, new operating systems have different hardware profiles. Windows 7 runs very comparably to Windows Vista on the same hardware, but if you're still lumbering along on PCs from circa 2003 or 2004, then you're going to want to invest in more capable hardware. In addition, newer hardware has better management features and power usage, so your operational costs may decrease. This brings me nicely to the next point.

4. Consider thin-client or managed terminals for future purchases.

It seems like we went from mainframes and dumb terminals to thick, smart desktop clients. However, for many office workers, there is now technology to deliver a thick-client-like experience using very [thin clients](#) and the [Remote Desktop Protocol](#) (RDP). New multimedia features are even available through Windows Server 2008 R2 Service Pack 2's [RemoteFX feature](#).



By centralizing users' desktops on a cluster or farm of terminal services, you can have much more control over update and refresh cycles, and an OS migration becomes easier. For one, it removes hardware from the equation and gives you a known base against which to test. This may not pay off immediately for your [XP-to-something migration](#) quest, but it would make future moves simpler and cheaper.

Migrating enterprise desktops to a new operating system is a challenge, but if you start tackling the project now, you'll be ready when Windows XP bites the dust.

Windows XP Upgrade Planning: Preparing for Windows XP End of Life

Even though it is more than 12 years old, [Windows XP](#) remains the second most popular installed version of Windows after Windows 7, running on 31% of all PCs, according to NetMarketShare.com. Many organizations never bothered to upgrade from XP to Vista due to the latter's [poor reception](#). This led to a number of customized enterprise applications becoming even more entrenched in the XP environment. As more time and resources were invested in XP, the case for upgrading became far less compelling.

Organizations must start looking at improving protection for XP-based applications and devices while finalizing plans to move away from XP.

However, despite its popularity, Microsoft is ending support for Windows XP on [April 8, 2014](#). There will be no more Windows XP security patches, no more automatic updates and no new support information. Research suggests that Windows XP is 21 times more likely to be infected by malware than Windows 8 and, although machines [running XP after April](#) will start and run as usual, the chances of infection could jump by two-thirds (based on malware infection rates in the two years after [Windows XP Service Pack 2](#) went out of support).

XP security: The risk is too great

Running XP endpoints in the enterprise is quickly becoming an unacceptable risk, and most large companies (90%, according to research firm Gartner Inc.) are either in the process of [migrating to Windows 7 or Windows 8](#) or have already done so. However, many small to medium-sized businesses have not even started preparing for Windows XP's [end of life](#), despite Microsoft's calculation that it takes at least a year for companies to fully migrate away from XP. While some firms have held on to the belief that Microsoft would not end support when so many are still using it, others are suffering from planning paralysis or have shied away from the task altogether.



The reality is that doing nothing is no longer an option; support from Microsoft will not be extended. Simply put, XP lacks the modern attack-prevention and mitigation capabilities

built into newer versions of Windows. Also, hackers can reverse-engineer new security patches for supported versions of Windows to find underlying XP flaws and turn them into working exploits. This has already happened to Oracle's Java updates, with hackers finding working exploits for outdated versions.

Another major risk of not [migrating from XP](#) to a newer version is increased system downtime. Many software and hardware vendors will no longer support their products if they're running on Windows XP. The chances of attacks succeeding will be higher, and there will be limited options available to prevent repeat attacks. For the most part, administrators will be on their own when it comes to solving problems. Though Microsoft will offer extended support, it will be incredibly expensive.

Windows XP migration planning

Organizations must start looking at improving protection for XP-based applications and devices while finalizing plans to move away from XP. Be sure to run an Nmap OS detection scan to find all the devices on the network that are still running Windows XP. Once detected, security on these machines can be improved in the interim by deploying Microsoft's [Enhanced Mitigation Experience Toolkit 4.0](#), which allows administrators to apply a variety of mitigation technologies -- such as Data Execution Prevention, Structured Exception Handling Overwrite Protection, Address Space Layout Randomization and return-oriented programming -- to applications and processes that don't use them natively.

One short-term solution for those needing to support mission-critical applications past April 2014 is running XP in a virtual environment; Microsoft offers a version of XP that runs as a [virtual machine](#) (VM) under Windows 7. While XP will not be supported, having Windows 7 as the host operating system will offer additional protection. Another option is to use Citrix in a similar VM scenario, but unless administrators are already familiar with supporting a Citrix environment, it could become an expensive distraction.

Until XP machines can be upgraded or cycled out, I highly suggest locking down and isolating them whenever possible to reduce the chances of infection. A [privilege management](#) product will help prevent new or unwanted programs or code from executing, while virtual patching and, if appropriate, a [Web application firewall](#) will provide additional layers of defense.

It is important to note that these are only temporary solutions. All legacy applications should be rewritten and migrated sooner rather than later, because running mission-critical applications on an increasingly vulnerable and unstable operating system is asking for trouble. While rewriting applications and upgrading licenses and hardware may be

costly, a data breach could set your enterprise back even more. Also know that running unsupported software is oftentimes a breach of many regulations and standards.

Microsoft has been extremely blunt about the dangers users will face once Windows XP end of life arrives and support ends. If an enterprise continues to use XP, it will be a prime target for cybercriminals who always favor widely installed systems with known yet unpatched vulnerabilities. Enterprises that cannot migrate immediately must prioritize quickly and make a decision on which temporary mitigation strategy best suits their needs until an upgrade is completed.

My advice? Begin working your migration strategy now if you haven't already. Don't be forced to react in a panic once the reality of unsupported software has already disrupted enterprise operations.

Gartner: Stick With Windows 7 Migration, Windows 8 Is Too Risky

Unless businesses plan to deploy larger numbers of tablets, they should avoid moving directly from Microsoft Windows XP to Windows 8.

With support for [Windows XP](#) due to end in April 2014, many organisations face the task of migrating to a newer platform. But Gartner has urged CIOs to [move to Windows 7](#), rather than attempt to [migrate directly to Windows 8](#).

Gartner distinguished analyst Michael Silver said: "I don't think it's worth the risk for most organisations to try to jump over Windows 7 to Windows 8, except potentially for tablets.



"If an organisation has not made progress with Windows 7 in the almost 3 years since it shipped, it's unlikely they could take a new OS like Windows 8, test it, upgrade security, management, and other critical software that won't support it, and deploy it to all their users in the 19 months left between now and the end of Windows XP support."

Gartner does see an opportunity to deploy Windows 8 to pacify users who want to use tablet devices such as the [iPad and Samsung Note](#) for work.

In its Windows 8 special report, Gartner noted: "For many organisations, especially ones that pay for both notebooks and tablets for users, the Intel-based Windows 8 tablet may be attractive as a single device to replace both a notebook and a tablet at a lower overall cost.

"If the organisation is purchasing the devices, it generally has a greater ability to decide what devices user run. This is especially true in the public sector."

Gartner said that if Windows 8 on tablets is successful, there will be many new device form factors to choose from and users may have very different needs and likes from one another.

Gartner said it expects some users will still want to use an iPad and a traditional notebook, while others may want to [trial different devices according to the job at hand](#).

Windows 8 will enable IT departments to support new types of devices such as the recently announced [Dell Latitude 10 tablet](#), allowing them to provide traditional desktop IT on these devices.

But Gartner warned that, as users gain more power with the tide of consumerisation, IT would be less able to mandate that certain products be used or not used in their environment.

“This makes it harder for IT to buy and support PCs the way they have for the past 20 years and may lead to more bring your own device (BYOD) programmes,” Gartner said.

Planning a Migration From Windows XP to Windows 7

In spite of the current economic situation, many organizations are upgrading from Windows XP to Windows 7. This really isn't too much of a surprise considering Windows XP turns 10 years old next year. And since few IT professionals dared to touch Vista, running [Windows 7 is a logical choice](#).

But *deciding* to upgrade to Windows 7 is the easy part; actually *migrating*, though, is a different matter. Windows 7 is very different from Windows XP, and as a result, Microsoft does not support in-place upgrades. While you can [upgrade from Windows XP to Vista, and then from Vista to Windows 7](#), this practice is frowned upon (and isn't officially supported) because it leaves remnants of two legacy operating systems (OSes) in its wake.

The only fully supported way to [move from Windows XP to Windows 7](#) is to perform a clean installation. While creating and deploying a [Windows 7 disk image](#) isn't too difficult, a lot of [planning must be done](#) before any large-scale [migration](#).

Which edition should you use?

Deciding which edition of Windows 7 to deploy is the first step in planning your migration. Three different editions of Windows 7 are suitable for businesses: Professional, Enterprise and Ultimate. Windows 7 Professional is mainly marketed toward smaller firms, although it can join a Windows Server domain. Enterprise Edition offers everything the Professional Edition does, in addition to support for Multilingual User Interface (MUI) packages, [BitLocker Drive Encryption](#) and Unix application support. Ultimate Edition is identical to Enterprise Edition except for how it is licensed: Enterprise Edition is only sold through volume licensing, whereas individual licenses can be purchased for Windows 7 Ultimate.

Architecture

An advantage of a [clean Windows 7 installation](#) is that it doesn't require the same architecture previously used. In other words, you can deploy the 64-bit version of Windows 7 even if you previously ran a 32-bit version of Windows XP.

However, remember that Windows XP is almost a decade old, and as a result, some computers on your network probably don't have 64-bit processors. Therefore, performing a hardware inventory is essential before making 64-bit the new standard.

Application compatibility

When Microsoft released Vista, the company ruffled many feathers as several applications

that ran without problems on Windows XP wouldn't work on Vista because of the new User Account Control (UAC) feature. Although Microsoft has toned down that feature in Windows 7, it's still there, and as such, application compatibility testing is a must.

Although UAC receives most of the blame for application compatibility problems, differences in OS architecture can also be at fault. Microsoft has tried to ensure 32-bit applications run smoothly on 64-bit versions of Windows 7, but I have found a handful that simply refuse to run in 64-bit environments.

Similarly, Windows XP supported the use of 16-bit applications. While 16-bit apps are no longer developed, plenty of organizations have legacy applications designed to run on DOS or Windows NT. Windows 7 will not natively run 16-bit applications.

To help with application compatibility, organizations with any of the three Windows 7 editions can download [Windows XP Mode](#). While on the surface, Windows XP Mode looks like a copy of Windows XP running in a virtual machine, there is a bit more to it. Applications installed on the Windows XP VM can seamlessly run through the Windows 7 graphical user interface.

In addition, [Windows XP Mode](#) does support 16-bit applications -- but they may not run exactly as expected. For example, a 16-bit installer starts, but it sometimes fails to actually install the application. Microsoft has said that apps that make extensive use of hardware interfaces, like 32-graphics and audio, do not work well in Windows XP Mode. In addition, not all desktops support Windows XP Mode because of the hardware virtualization requirement (AMD-V or Intel VT).

Although Windows 7 offers better backward compatibility than Windows Vista, there are applications that do not run properly on Windows 7. Therefore, hardware and application compatibility testing is essential prior to a [large-scale migration](#).

Before a Windows 8 Migration, See Whether the New OS Is a Good Fit

The introduction of a new Microsoft operating system always serves as something of a milestone for IT leaders, providing them a chance to stop, evaluate one of their organizations' key building blocks and contemplate changes. As Windows 8 migrations begin, one such moment has arrived.

Now that enterprises have had their [first good look](#) at Microsoft's new OS, the serious discussions about how -- or if -- to implement it have begun. Much of the talk has been about the [new touch features of Windows 8](#), but enterprise decision makers should be just as curious about a slew of management and usability features that Microsoft has put significant effort into developing.

Of course, [updating to Windows 8](#) is no small task. In addition to the complexity of such a move, the OS itself has been fairly divisive. Some people love it, others hate it, and there are serious questions about how widely it will be adopted on non-tablet hardware.

IT shops that think a Windows 8 upgrade might be worthwhile should look at four key areas: where Windows 8 fits into the enterprise, [how to handle legacy applications](#) in the new OS, tools to use for the migration and details about licensing. This first tip in the series looks at where and whether Windows 8 fits.

Windows 8 stands apart from its predecessors -- Windows 7, Windows Vista and Windows XP -- in that the rise of touch-centric computing devices, such as slate PCs and tablets, influenced a big portion of its design and engineering philosophy. Previous editions of Windows had some touch-oriented functions, but Windows 8 revisits all of them. It also provides an entirely [new desktop environment for running apps](#) -- formerly known as Metro -- specifically designed to make the most of a touch-based user interface.

One easy conclusion to draw from this is that Windows 8 isn't for "regular PCs." There's a kernel of truth to that. Many of the new user interface behaviors are [optimized for a touch environment](#), and while touch devices don't require Windows 8, they tend to benefit most from it.

Still, the general rule of thumb is: If it runs Windows 7, it'll run Windows 8.

A great deal of Windows as we have come to know it still exists in Windows 8. It's just presented differently -- like the Metro version of the Start menu, which [no longer lives in its familiar home](#) in the screen's lower-left corner.

Another important thing to bear in mind about whether to [pursue a Windows 8 migration](#) is the number of changes in the OS that have nothing to do with its user interface. These include memory management refinements, hypervisor and virtual machine functionality, and the capability to [boot Windows from a thumb drive](#) with Windows To Go. It's unlikely many of these features will be back-ported into Windows 7, because of technical feasibility and Microsoft's own product-development strategies.

To that end, Windows 8 may provide the most benefit when deployed first on devices where [Windows 8's touch functionality](#) will be readily available and useful. It's less of a priority to deploy it on conventional desktop or notebook systems, unless there are other, under-the-hood features of Windows 8 that make it vital to do so -- and if you're building a sizeable chunk of your future infrastructure on top of that functionality.

Windows XP Migration Tools Help IT Ward Off Upgrade Hassles

Windows XP migration tools will help IT shops move to a newer operating system quickly when the aging software's support ends next month.

Microsoft has become aggressive about making its customers aware that April 8 is the end of its support and updates for Windows XP. This week, Microsoft partnered with Laplink Software to provide a free tool called PCmover Express for Windows XP. It transfers XP data to Windows 7, [Windows 8](#) and Windows 8.1 computers. IT professionals who want to migrate their applications need the Pro version of the tool, which lists for a discounted price of \$23.95.

Vendors such as Browsium Inc. and Splashtop continue to support Windows XP users and plan to do so beyond the end-of-life date.

Windows XP migration tools aid browser management

[Windows XP migration](#) hurdles include migrating data, applications and user configurations to new PCs, and companies that need access to custom and [legacy Web-based applications and data](#) face browser management issues.

"Browser management is an ongoing challenge for IT," said Gary Schare, president of Browsium, based in Redmond, Wash. The company recently updated its Ion Web application remediation and browser management tool, adding Windows 8.1 support.

Ion 3.2 also now supports Windows Server 2012 R2, Internet Explorer 11 and IE 11 running on Windows 7, in addition to providing support for custom registries and files, among other features.

"If you had a lot of Web-based applications, this would be a tool you would definitely want to try out," said David Driggers, supervisor of desktop systems at Alabama Gas Corp., a Microsoft shop in Birmingham, Ala. Alabama Gas used Microsoft's System Center Configuration Manager 2012 for its migration to Windows 7 and Office 2010.

Meanwhile, Splashtop's IE Browser-in-a-Box enables businesses to run corporate Web-based apps that use older versions of IE and are dependent upon Microsoft technologies such as ActiveX, Silverlight, and some .Net and Microsoft services packs. PCs, Macs and mobile devices can access the legacy data and Web apps.

"Businesses have a lot of Web apps tied to [older] IE versions," said Mark Lee, co-founder and CEO of Splashtop in San Jose, Calif. "In the Windows XP world, it is IE 6. How do you continue [using] these Web apps? Rewriting them is an option, but the expense is huge."

Indeed, accessing legacy Web-based applications and data that use older browsers [is a concern](#) now with the official Windows XP end of support. Even larger vendors such as Dell Software are partnering with companies like Browsium to alleviate the migration risk. Dell Software's ChangeBASE is an automation tool focused on application compatibility testing, remediation, [virtualization](#) and packaging.

"With cloud and Web applications and different browsers, people want to secure the data," said Ann Maya, senior product manager. ChangeBase currently supports IE, Safari and Firefox, with support for Chrome "on the near horizon," she added.

Despite the end of Microsoft support next month, Windows XP continues to be a workhorse for many businesses, with a 29.5% operating system market share, according to NetMarketShare. Windows 7 owns 47.3% market share, Windows 8 and 8.1 10.7%, Mac OS X 10.9 3.5% and all others 9%, revealed the online market statistics provider.

Ten Essentials for Enterprise Desktop Migrations to Windows 7

Mark Twain once said, "Migrating to Windows 7 is easy; I've done it hundreds of times!" My apologies to Mr. Twain, as I may have gotten his [quote wrong](#), but the gist is the same: While one desktop migration isn't that bad, what happens when the process needs to be repeated hundreds, thousands or even hundreds of thousands of times?

It becomes a challenge of managing moving parts.

An enterprise desktop migration -- like any project -- has two major phases -- planning and execution. It's important to keep these two phases separate and deliver them in the correct sequence because of the breadth and scope of a [Windows 7 migration](#).

If this sounds pretty basic, well, it is. But like with most IT projects, the basics are frequently overlooked, and [66% of projects fail](#) to meet their stated objectives.

Keep in mind that the term *desktop migration* is in fact a euphemism for the full re-engineering of desktops, laptops and all related management systems. Many IT organizations do not appreciate the interdependencies of the desktop environment, so they take the overall effort for granted.

Your program's plans, identified processes and desktop architecture will change as the project progresses. If you wait for absolutely final and complete solutions, then timelines will slip and costs will increase while progress all but halts. And don't lose sight of having to keep end users happy and productive while you turn their office and IT world upside down.

The 10 recommendations discussed in this two-part series are based on firsthand experience in the execution of just under 20 desktop migration projects involving more than 200,000 seats and 50,000 applications. Each enterprise is different and will have unique issues, but these essentials affect every migration project in some form.

1. Come up with a communication and education plan

Unlike most other IT initiatives, a [desktop migration](#) project affects all users, and they need to be made aware of the migration, kept up to date on its progress, and informed about when they will be affected and how their data will be moved.

While desktops are a corporate asset, many users have a [personal connection](#) -- as well as a fair amount of individual data -- on their machines. Employees need to know how to deal with the data that exists outside the supported programs. Furthermore, because the move

from Office 2003 to [Office 2010](#) includes a completely new interface, it's important to train end users on how to access it in order to reduce productivity loss. In addition, IT needs training on new features, capabilities and programming standards.

Remember that people of different generations learn differently, so offer training that fits everyone's needs. Developing these training programs takes time, and it needs to be made available *just* as people are migrated. If you offer trainings too early, your users won't remember the content. Offer it too late, and your users will be frustrated and unproductive, and they will likely view the overall migration unfavorably.

Application-development planning needs to start as soon as possible. Developers need to review their apps and determine the level of impact and cost on their parts of the portfolio. There are significant differences between commercial, off-the-shelf applications and those written internally, and time needs to be set aside to address problems that could arise.

2. Architect a single 64-bit desktop image

Design and build a base desktop image where additional components can be added as they are made available for Windows 7 and the new platform.

If you do this as quickly as possible, early adopters and application developers can start testing the environment and become familiar with the changes to the operating system and Office 2010. Evolve the build with regularly scheduled updates and enhancements. These updates should include vetted common components such as middleware and other third-party applications, as well as changes based on newly-collected information.

Furthermore, you can incorporate developer and early adopter experiences not only in the next scheduled desktop image release, but also in business communications about the program. Create a schedule of [image releases](#) to roll out changes and fixes regularly (but not so frequently as to be disruptive). Quarterly releases are more than sufficient.

Use this project to get to a single common desktop image with add-ons for specific business divisions or user communities. Managing multiple images will just increase the project cost and duration because each one will require its own packaging and testing activities.

As for the 32- or 64-bit decision, go with 64-bit. Gartner forecasts that that by [2014, more than 75% of PCs deployed](#) will be 64-bit, and including this as part of the overall project could reduce costs. You won't get a performance boost from the move, but you are future-proofing your environment. New devices and commercial off-the-shelf software are being developed for 64-bit machines, and organizations need to be ready. Plus, moving to 64-bit

does not make an overall Windows 7 migration any more difficult. If every application has to be tested for Windows 7, test it for 64-bit compatibility as well. The most significant potential problems are firmware and driver incompatibility (64-bit drivers must be used) and how to support older equipment for which drivers don't exist and the manufacturer has no plans to offer them.

Once the hardware architectural decisions are made, start the vendor selection process and put potential desktop equipment out for bids.

3. Define an unambiguous migration process

All the extended team members, including the application developers, the packaging team and the testing team, must understand what they're expected to do and when they need to do it. The verifiable outcomes for each phase must be defined so that the end of one step and the beginning of another can be clearly tracked and measured. Accountability will help the program achieve major milestones.

Create an overall process description, but provide enough details so that any program outsiders will be able to do what they are asked to do. Developers who deliver ahead of the project plan (a very good situation) can quickly become thought leaders and help tune and improve the process for the rest of the team. They can just as easily slow the project down by informally sharing their unsatisfactory experiences based on a lack of guidance from the core program team. Get the process guide distributed as part of the communications plan as early as possible.

The migration process needs to address the complexities of end-user data storage, variances from company standards and disparate configurations across the enterprise. Include steps to verify client data locations, save the existing user desktop state and specify which data will be migrated. Consider setting a policy where nonstandard data storage migration is the data owner's responsibility.

Starting a major project without a stated direction leads to confusion and disillusionment within the team and ruins the credibility of the program leadership.

Certainly, early in the project lifecycle, there are many unknowns. As the migration progresses, you can apply the lessons learned and update the process. The program team can't anticipate everything, and that's OK. But there must be a concise and defined way to modify and communicate changes to process.

4. Create a detailed and achievable project plan

Since enterprise migrations typically touch every company employee, they are by nature

very visible. Everyone will see delays. Preventing -- or at least reducing -- these delays require basic project management skills. Create a plan, manage it, and hold people accountable to delivering accordingly.

The plan should be detailed enough so that delays can be addressed quickly and the problems fixed. It must also be developed from bottom up. This means you need to determine the major milestones and final cutover date based on the sum duration of the tasks.

For a program this large and complex, *do not* pick the timelines based on the personal preferences of executives. This will result in missed deadlines and an overall poor program quality.

The migration effort is similar across organizations. Enterprises are basically the same when measured by end-user populations, the number of applications and office documents, and support staffs. This leads to similar levels of effort and timelines, regardless of company size.

It's going to be hard.

5. Build an effective, cost-efficient team

Thankfully, enterprise migrations don't take place on a regular basis. As a result, however, most organizations don't have deep upgrade, migration and conversation expertise. They also don't usually have robust testing environments and capabilities. On top of this, with all the recent cost-cutting, many staffs already work long hours.

Determine early on which capabilities and skills are needed for the migration. It's best to pull this information from the comprehensive project plan.

Take advantage of the people who do migrations, conversions, packaging and testing for a living. Application-specific knowledge and corporate engineers and architects should almost always be internal, but most of the other team members can be sourced from third parties. A migration project requires a specific skill set, so there is no reason to build capabilities that will expire at the end of it. Talk to software and OS vendors who are familiar with their products' problems. Offshore companies can provide conversion, packaging and testing services. You should also look for professional services firms that can be your single point of contact for the whole initiative.

In addition to identifying the resources available, look at the expected manual processes and see if there are any tools that could do the work more efficiently. Some fairly mature tools address applications as well as Office content. These tools can help you identify how

big your problem is and populate your inventory databases. They can also be used to create "RAG" (red/amber/green) impact ratings and, in the case of "amber" problems, fix them. Investigate which tools are appropriate, get and install them, and then put them to use.

6. Inventory collection: Know what you've got

A migration to Windows 7 won't work if you don't know how much effort it will take. The level of effort determines the project plan, the timeframe for application remediation, the size of the packaging team and what testing is going to be required.

As a result, an inventory of *all* enterprise applications and existing hardware needs to be collected as completely as possible. While the focus is on desktop applications, many other mainframe or server apps could be affected by an unresponsive PC app. In addition, knowing the hardware on every desktop is critical to understanding where [Windows 7](#) works -- and where it doesn't.

Although the tool you use to maintain the inventory is irrelevant, the database must be simultaneously accessible by the core and extended teams. Therefore, the optimal product is a cloud-based configuration management database (CMDB). It minimizes an organization's support requirements and can be up and running in a few hours.

A good way to determine what information to collect is to use the [IT Infrastructure Library \(ITIL\) CMDB specifications](#). At a minimum, your data must include the application and all its components, estimates of the Windows 7 impact and the desktop hardware configuration for every asset. It should also include soft information such as version levels, application owners, their contact information (to help with project accountability), who developed it, when it was developed, when it will be retired, the number of users, what divisions use it and so on.

Unlike delivery skills and capabilities -- which expire once your desktop migration is complete -- this database is a valuable corporate asset that should be maintained beyond the end of the program. The data will also be the source of all reporting. Think about the reports you typically use for large projects like this and what executives usually want. Based on the anticipated demands, ensure that the underlying data is available for the identified metrics and service-level agreements (SLAs).

7. Don't forget about Office content -- and watch the rules

A [Windows 7 migration](#) often includes a migration to [Office 2010](#), and information about relevant Office documents should also be collected in the CMDB or central application repository. Microsoft Word, Excel, PowerPoint and Access files can all be [affected by](#)

[changes to macros](#). While the effect may be small in terms of volume, IT may not know in advance the importance of those files that no longer work in Office 2010.

On average, an employee has about 1,500 documents on his local and/or network drive. Of those, 3% will be affected by the migration to Office 2010 and require some form of remediation, and 3% to 5% will require manual intervention to work in the new version.

It can be a challenge to find the needle of affected files in the Office document haystack. An automated tool is the most efficient way to discover the documents, scan them, generate reports and fix the problem. Do this early to get troubles out of the way quickly. In addition, consider limiting the scope by converting only those files created or modified in the past 13 months. This should cover all files required for business operations, including quarterly and year-end activities.

Global enterprises and companies in certain industries such as financial services and pharmaceuticals need to understand regulatory requirements. In some cases, archived files can't be modified in any manner, and even the viewing of a filename by anyone other than the author might be against the law. Furthermore, certain records-retention policies mandate that files be kept in their original format. Whatever the regulations, it's important to establish policies and communicate so they aren't violated.

[Moving to Outlook 2010](#) has a number of challenges of its own. Forms, add-ins, helper objects and other linkages can lead to problems that affect the overall migration. Depending on the features an organization depends on, [migrations to Exchange](#) 2007 or 2010 might be required. Exchange migrations are normally programs unto themselves, but in this case, they might be parallel with your Windows 7 upgrade.

8. Prioritize the work and applications

The CMDB or inventory database can also be used as a workflow and configuration management tool. The migration plan needs to balance the priority of business-critical apps with the IT conversion effort.

Main applications -- as well as all required components and interconnections -- need to be tracked. Data mining will show which components are common among apps. The components required by the most applications should be remediated and tested first. Also, consider critical business periods, so don't roll out new versions of accounting applications during a quarter or year-end close.

Get the "green" applications (those assessed to work in [Windows 7](#) or Office 2010) packaged and tested immediately. For "amber" applications, find out their business

criticality, organizational interdependence and regulatory compliance needs, and sequence them based on priority. Create objective measurements to make this determination, but then review the list with a subjective eye to make sure the order makes business sense.

Programs without a repair option, such as the application of wrappers (or ["shims" in the Microsoft vernacular](#)), virtualization or a complete replacement, should be quickly defined and established. These applications are likely going to take the most time to remediate, and they will also be the most expensive. The project management office's (PMO's) governance model should include a review boards that is responsible for all nonstandard activities and their related costs.

9. Measure everything

As the project is planned, it's important to consider what will be reported and what data is needed to create the reports. Specifically, you need level-of-effort estimates for the assessment and remediation of applications and Office documents. This will help you understand delivery costs and enable you to suggest alternatives when the standard remediation solution won't work.

In an extreme example, one company identified that less than 1% of its inventory drove more than 27% of its application-remediation costs. It could have used its data to prioritize remediation for the most commonly used modules, applications or shared Dynamic Link Libraries (DLLs). In other cases, it would take less time and money to replace the app or change vendors.

The right metrics can also show which extended team members aren't performing. By tracking the status of every application, the PMO can see who is not doing their jobs and "encourage" them. In addition, my experience has shown that contacting people who miss their personal milestones can uncover problems that would have otherwise gone unidentified.

10. Use virtualization technology where appropriate

[Virtualization](#) can positively affect the desktop migration program. When development hardware is unavailable (and even when it is), virtualization allows the engineering team to quickly create the standard desktop image. In addition, some virtualization products can enable central distribution and management of desktops. This helps ensure that all developers and testers are working from the same desktop version, and both of these features can reduce the overall software remediation lifecycle.

Furthermore, even without hardware, desktop virtualization can quickly provide the application development community with development and test environments.

Virtualization can also enable cross-platform compatibility, allowing the coexistence of the two operating system versions while the migration activities take place.

Frequently, the migration to Windows 7 is performed in parallel with the acquisition of new hardware. The hardware vendor selection process can delay overall application remediation, packaging and testing. An application development community armed with [virtual Windows 7 environments](#) can perform all but the final tests.

Windows 7 offers [XP Mode](#) (XPM), which allows a Windows 7 machine to run applications in a Windows XP environment. Although XPM's performance isn't sufficient for strategic use, it can be a tactical fix for apps that can't be remediated. Organizations can also use [XP Mode](#) to quickly migrate to Windows 7 and then move applications from XP Mode to the native operating system as they are made compliant.

Application virtualization can also be used where remediation is not technically possible or where it might just be too expensive. Some application virtualization products package apps with all the dependent components, such as older device drivers and DLL files. They run in their own isolated environment, which allows an otherwise incompatible application to run in Windows 7.

The next steps

If your organization is planning to migrate to Windows 7 and Office 2010 this year, now is the time to start your initiative. Begin the migration with the following steps:

1. Survey your application development groups. Compile a list of the applications you have, and identify their dependencies. Investigate repositories or tools to collect, track and report on the application and Office content inventory. (Bonus points if you collect information about the currently installed hardware as well.)
2. Start building a straw-man project plan to prioritize what will migrate by order of magnitude and find who is available to do the work. This will help reveal what third-party resources are needed.
3. Begin engineering a [single Windows 7-based image](#), which will evolve into the final build to be rolled out. Explore how virtualization tools can help share this image with the application developers and third-party resources.

Certainly, other important issues exist. The management of multiple environments and interim solutions, decommissioning of obsolete components, and risk and security are all critical to the program's success. Get through these top 10, and then work on the next 10.

This is one project that benefits from you starting now. Don't do as [Mark Twain said](#), "Never put off till tomorrow what can be put off till the day after tomorrow just as well."

Start your migration to Windows 7 today.

Checklist for Upgrading from Windows XP or Vista to Windows 7

Moving enterprise workstations to Windows 7 doesn't have to be a daunting task. Whether you're migrating a few desktops or hundreds, there are certain steps you can follow to ensure a smooth, problem-free transition. But regardless, there is no clear method that is best for all organizations. Some will handle upgrades on a machine-by-machine basis, and others will create an image that is installed when the user next logs on. Some organizations will upgrade Windows Vista systems, while others will choose to back up system settings and do complete, new installations and restore user settings (or not).

Here are some steps to take when upgrading from Windows XP or Vista:

1. Determine if the target computer meets minimum hardware requirements.

Some computers running Windows XP may not have the resources necessary to run Windows 7. If this is the case, it may make sense to purchase a new computer with Windows 7 already installed. A new computer, including the operating system, may not cost much more than the licensing fee for the new OS, and the computer will most likely have more RAM, a larger hard drive, and a single- or multicore 64-bit processor. In addition, the new computer will probably have a longer usable life than the older machine running Windows XP.

Note that Windows XP is not directly upgradable to Windows 7. The upgrade can be done in at least two ways. You can upgrade to Windows Vista with migration tools built into Vista, and then upgrade from Vista to Windows 7. The second way ---- which I recommend ---- is to back up the user's computer and Windows settings, then install a new version of Windows 7.

A tool such as [CrossTec's EMS](#) can be used to create an inventory of the hardware and software in an enterprise. This inventory can ease the process of determining which computers are candidates for upgrades or clean installs.

2. Back up data, applications and settings.

If you're following a two-step upgrade path (from Windows XP to Vista to Windows 7), you should back up of all data, apps and settings on the computer. A variety of tools can do this, but Microsoft includes [Easy Transfer](#), which can transfer files and settings to a remote hard drive, a flash drive or an office network. Depending upon the amount of data, this can take anywhere from a few minutes to a few hours to complete.

Other commercial applications are available to make copies of system settings, data and applications. Easy Transfer does not transfer the actual applications.

The [Microsoft Deployment Toolkit](#) is useful for developing system migration strategies.

3. Install Vista.

Once the settings have been copied, insert the Vista installation disk or copy the image over the network to the workstation being upgraded. When the application runs, choose "Upgrade," and the computer will be updated, with most settings and applications still installed and working. After Vista installation completes, run some applications and make sure that the upgraded computer is running successfully.

4. Upgrade from Vista to Windows 7.

Once you've backed up user data and settings, insert the Windows 7 disc or copy the installation files from the network's server. Run the installation as an upgrade. Once completed, again log into the network, test the functionality of Windows 7 on the workstation, and test the system. Note that some applications that were written to run on Windows XP may not work natively on Windows 7. Virtual Windows XP should enable these applications to run on this computer in Virtual XP mode.

5. Troubleshoot the migration.

If the upgrade fails, try a clean installation from a DVD or an approved image in your enterprise to the target computer. Once installation is complete, restore the image created using Easy Transfer, reinstall the approved applications, and the system should work for the user.

A Downgrade from Windows 8 to Windows 7 Doesn't Have To Be Complicated

Although Microsoft's latest operating system is gradually gaining acceptance, thanks largely to the Windows 8.1 update, there is no denying the fact that it isn't for everyone. For those who want to wash their hands of Windows 8 and revert to Windows 7, it can be done, but the process involves quite a bit of planning. Here are some things to consider before you downgrade from Windows 8 to Windows 7.

Licensing and supportability

The first step in making the transition back to Windows 7 is to determine your organization's license requirements and whether such a move is supported. If you purchased physical PCs with Windows 8 (or 8.1) Professional Edition, then Microsoft [gives you the rights](#) to downgrade to Windows 7 Professional or Windows 7 Ultimate. If you have a qualifying version of Windows 8, then you should be able to contact the PC OEM to obtain Windows 7 and the required product key.

If you have the basic edition of Windows 8, or if you purchased the [Windows 8 license](#) separately from your hardware, then you do not have any downgrade rights. You will have to purchase the required Windows 7 licenses outright. When you do, make sure that the installation media is included. Otherwise, you might receive a Windows 7 product key and nothing else.

Perform a hardware and software inventory

One of the most important steps in the downgrade process is to perform a comprehensive hardware and software inventory on the PCs that you are downgrading.

When performing a software inventory, there are three main things to look out for. First, check each application for Windows 7 compatibility. Don't forget utility software such as antivirus agents.

Once you verify application compatibility, the next thing to check is whether you have a way of installing the software. You [can't insert a Windows 7 DVD](#) into a Windows 8 machine and perform an automatic downgrade. Windows 7 requires a clean install. This also means that applications will have to be reinstalled. As such, you will need some sort of application media, whether it's a DVD, a network distribution point, or something else.

Finally, check your application licenses. Some applications may require a new license key if they have previously been activated on a Windows 8 PC. This could end up costing a lot of money. It's a good idea to [determine the licensing requirements](#) ahead of time. If any of the applications do require new licenses, you may be able to talk to the application publisher about your downgrade so as to avoid paying for new licenses.

As for the hardware inventory, you should go through the Device Manager and make a list of the hardware that is being used. You can then locate and download Windows 7 drivers for the hardware. If you are [running Windows 8](#) on virtual PCs, you won't have to worry about this step.

Make a backup before you move from Windows 8 to Windows 7

Just before you perform the downgrade, you should make a full backup of each desktop configuration. There are a number of things that can go wrong during the downgrade process, so it is important to have a backup to revert to Windows 8 should it become necessary to abort the downgrade. Incidentally, simply making a backup is not enough. It is equally important to test your backup.

Don't forget about the boot configuration

A critical, but easily forgotten step in the downgrade process is to reconfigure your [computer's BIOS](#). Unlike previous versions of Windows, Windows 8 uses [Unified Extensible Firmware Interface](#) (UEFI). You'll to disable UEFI and enable legacy boot for Windows 7 to work properly. To do so, go to Settings, click PC Settings, and go to the General tab.

Then, click Advanced Startup and then click the UEFI Firmware Settings tile. You can now disable Secure Boot and enable Legacy Boot. This will allow Windows 7 to be installed. Of course, if you are running Windows 8 on virtual PCs, it will probably be easier to simply delete and recreate the virtual PCs than to change the boot type.

As you can see, there are a number of steps involved in downgrading [to Windows 7](#), and the transition is often anything but smooth. It is a good idea to test the downgrade process in a lab environment before attempting it in your production environment.