

# Windows 7 Migration: An industry view of application compatibility



## Abstract

In the two years that Windows 7 has been available to the enterprise, many organizations have made the move, and common challenges have been identified. This white paper discusses the application compatibility challenges facing those who haven't yet migrated to Windows 7, allowing them to benefit from the experiences of early adopters.

## Introduction

This white paper is intended for audiences familiar with Microsoft Windows 7 deployments at an industry level. It summarizes initial findings from the first 12 months of deployments since the release of Windows 7. Then the paper examines some of the changes in the industry over the past two years, including:

- Windows 7 64-bit compatibility
- Enhancing a migration with Office 2010
- The impact of IE8 on the migration process
- Microsoft App-V adoption

This paper then describes the core new challenges that have arisen as the industry moves forward, such as:

- IE9 adoption
- Virtualization adoption
- Hybrid virtualization environments
- Application package conversion

The paper concludes by summarizing Dell's recommendations for Windows 7 deployments and taking a look ahead to migrations to Windows 8 and the cloud.

## Windows 7: 2009-2010 revisited

The first year of Windows 7 adoption can be summarized as follows:

- Windows 7 adoption rates were much higher than expected.
- Windows 7 compatibility issues were identifiable and the vast majority were completely fixable.
- Internet Explorer 8 was a primary compatibility challenge for Windows 7 deployments.
- Virtualization adoption was slower than expected.

- Migration costs were in many cases lower than previous migrations.
- Microsoft compatibility solutions (SHIMS) were not successfully adopted by enterprise clients.

Research by Dell's ChangeBASE team found that about a third of applications had no compatibility issues upon initial assessment, and the compatibility issues in most of the other applications could be fixed:

Dell's ChangeBASE team assessed large and diverse application portfolios from a variety of industries and countries around the world. The most important finding was that most organizations experienced a success rate of over 95% when migrating their entire application portfolio to Windows 7.

Application type	Initial assessment	After fixing
No compatibility issues	34%	92%
Minor updates or "tweaks" required	61%	3%
Developer update or upgrade required prior to deployment	5%	5%

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The following table illustrates the nature and incidence of the common compatibility issues found in enterprise Windows 7 migrations:

Windows 7 compatibility issue	% Applications affected	% Applications fixable
Legacy help files	36%	100%
UAC file header issues	24%	100%
Custom action security issues	19%	100%
Legacy control panel issues	13%	100%

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## Two years of Windows 7: A summary of key challenges

### Windows 7 (64-bit) compatibility challenges

During the early days of Windows 7 desktop migrations, many organizations eschewed the 64-bit platform, fearing massive device and driver level compatibility issues that would only arise during later, more detailed and expensive UAT testing. But when large enterprises did assess their application portfolio for compatibility with the

64-bit version of Windows 7, extensive analysis found that most applications would support 64-bit versions of Windows 7, with most organizations experiencing 90% or higher rates of application compatibility.

The following table illustrates the types and ranges of issues that organizations face when moving to the 64-bit version of Windows 7:

64-Bit compatibility issue	% Total issues
Unsigned drivers	64%
Windows 7 16-bit deprecated API	35%
DirectX video acceleration API	1%
Non-supported VDM functions	<1%
PAE and AWE API	<1%

### Microsoft App-V compatibility issues

Microsoft's application virtualization platform App-V was slow to be adopted by large enterprises, in part because it took Microsoft a number of releases of App-V to support needed .NET framework components and other enterprise requirements. However, since the release of App-V version 4.6 and with the addition of Service Pack 1, the tools and the virtualization eco-system are now sufficiently mature to allow for

wide-scale adoption and production deployment of App-V application packages.

At the executive level, it was assumed that all applications could be virtualized until a number of significant failures in the industry raised the issue of application compatibility. The following table outlines a number of the key Microsoft App-V compatibility issues that such enterprises experienced:

App-V compatibility issue	% Applications affected
Hard-coded references	32%
Non-supported drivers	29%
No shortcuts	16%
Non-supported reboot requirements	14%
Non-supported service installations	9%

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### Microsoft Office 2010 Migrations

Midway through their Windows 7 desktop migrations, many organizations were choosing to take advantage of the latest release of Microsoft's productivity suite: Office 2010. For those moving from Windows XP and older versions of Microsoft Office, there were some substantial compatibility and application level interoperability challenges to overcome, including the following:

- Moving from Office 2000 to Office 2010 is a very significant upgrade, with both document level and application compatibility challenges.

- Office has grown to become a major component of the workstation build, and ISV software vendors have developed and shipped applications that depend upon a specific version of Office.
- Third-party application integration levels have increased in the last few years, culminating in a heavy dependence on Microsoft Office components.
- Applications may have explicit, hard-coded dependencies on previous versions of Office.

Here is an overview of some of the issues that Dell's ChangeBASE team has encountered:

Office 2010 compatibility issue	% Total issues
Office deprecated components	67%
Deprecated file formats	15%
Deprecated IISAM drivers	9%
Office 2010 deprecated API	1%
Non-supported registry settings	<1%

### Internet Explorer 8 and 9 Migrations

Deploying Windows 7 desktops to the enterprise also means a forced upgrade to Microsoft Internet Explorer 8 (IE8). This was a unique challenge for the desktop migration process, as it was the first time that a browser affected the desktop upgrade and deployment process. Moreover, for most organizations, the impact was very serious. There are a number of examples where a single (but vital) web application that had built-in IE6 dependencies and therefore did not support IE8 either significantly delayed or stopped a very large server and desktop migration. The core compatibility issues experienced when migrating from IE6 to IE8 are as follows:

- Server OS platform compatibility – Compatibility issues arose relating to the installation or configuration of the server component on the updated server platform.
- Client browser compatibility (IE8 and IE9) – Compatibility issues were found related to how web sites look and work under the new browser, including presentation issues (CSS), and security restrictions.
- Application integration issues – One of the surprises of the investigation into browser compatibility was the number of desktop applications that integrated with the browser. Applications experienced compatibility issues with browser integration, application documentation such as HTML and application dependencies on an IE rendering engine.



## New Challenges: What Has Changed in Recent Years?

Over the past few years, there have been significant changes to the industry. Going forward, Windows 7 deployments will start to see the following evolutionary changes to the migration process:

- Adoption of application virtualization will increase.
- Organizations will choose blended virtualization scenarios with multiple vendors.
- Internet Explorer 9 adoption will increase and associated compatibility concerns will have to be addressed.
- Application virtualization conversion will now be a key application management effort

Here's what each of these changes mean for the enterprise.

### Rapid adoption of application virtualization

In the early days of Windows 7 migrations, there was a great deal of high-level discussion and planning for virtualization, but very little actual adoption of virtualized applications. Server and workstation virtualization was common at the desktop and data-center level, but production-level examples of large application virtualization migrations were relatively rare.

As Windows 7 migrations have evolved and the tool sets and virtualization eco-system have matured, application virtualization has moved from early planning activities to full-blown production deployments. Enterprises are now embracing virtual applications as part of their core IT strategy, and Dell's ChangeBASE team is seeing a dramatic increase in the number of application virtualization projects, as well as a corresponding increase in the number and nature of virtualization technologies available in the enterprise for application streaming and virtualization.

### Blended virtualization scenarios

With the mixed results of the introduction of App-V virtualized applications, some organizations

have begun to investigate alternative virtualization platforms, such as Citrix XenApp, VMware's ThinApp and Symantec's SWV layered virtualization approach. As organizations began to test and deploy applications in a variety of formats, most discovered that some applications were virtualized more successfully with one technology than another. This finding has led some organizations to use a best-of-breed approach to virtualization: they employ the best technology for each type of application, which results in a mixed or multi-vendor virtualization environment. As result, one of the key challenges organizations now face is to determine which technology is best for each scenario prior to expensive installations and UAT testing.

### Adoption of Internet Explorer 9

Over the past year, we have seen the successful introduction of Microsoft's Internet Explorer 9. With its minimal interface and enhanced process ability (through the use of the GDI processor on a machine's graphics card), IE9 is, however, yet to build a high profile in enterprise deployments. Given that the primary compatibility challenges experienced with IE8 were in fact related to migrating "from" IE6 and its attendant quirks and idiosyncrasies, migrations from IE8 to IE9 should not pose any major additional compatibility challenges to enterprise desktop migration efforts.

### Application package conversion

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and deliver applications in a standard format using an automated distribution mechanism (SCCM, Altiris, etc.). Now, the Windows 7 deployment process includes the requirement to convert applications from their existing desktop application package formats (usually MSI Installer) into either single or multiple virtualization formats. This additional step raises the following challenges:

- Packagers with application sequencing/profiling experience are rare, and expensive to hire.
- Not all applications are good candidates for virtualization.

- Multiple virtual platforms are required.
- Most applications are expected to be virtualized.

These challenges add up to an unprecedented and expensive effort that was not generally included in the "sale" of virtualization or in the numerous ROI models offered by virtualization vendors. To help resolve this, organizations need tools to automate the conversion of existing application portfolios to virtual formats with the ability to support multiple platforms.

## Conclusion

### Recommendations for Windows 7 deployments

Please remember that support for XP runs out in April 2014. To conclude, then, there are a number of key recommendations which should be noted by any organization planning a deployment to Windows 7:

- Start the Windows 7 deployment planning process immediately.
- Application compatibility challenges will include desktop, server, virtual and web based platforms.
- Large application portfolios will require automated tools for identifying and fixing compatibility issues and for converting native applications into virtual formats.
- The Internet Explorer compatibility challenge will include identifying and testing all external Web applications that are used by employees, in addition to resolving known compatibility issues in company-owned web sites.
- Be ready for multiple virtualization platforms (at least App-V and one other).
- At least two browsers will be required for most enterprise deployments (IE8 and one other).

### Preparing for the next version of Windows

What is in store for enterprises in the not-too-distant future with Windows 8? Dell's ChangeBASE team expects to see a number of additional migration and application compatibility challenges come to light, including:

- Cloud migration, including support for multiple cloud configurations and vendors
- Increased requirement for automation and audited process for both fixing and converting applications
- Increased focus on rapid application updates and change control processes
- Increased requirement to support multiple client platforms (desktop, virtual, tablet and mobile)

### For more information

For more information about the products and technologies mentioned in this white paper, see the following sources:

#### ChangeBASE

- <http://www.quest.com/changebase/>

#### Microsoft Windows 7

- <http://windows.microsoft.com/en-US/windows7/products/home>
- <http://social.technet.microsoft.com/Forums/en/w7itproappcompat/threads>
- <http://www.microsoft.com/windows/compatibility/windows-7/en-us/default.aspx>

#### Microsoft Application Virtualization (App-V)

- <http://www.microsoft.com/windows/enterprise/solutions/virtualization/products/app-v.aspx>

#### VMware ThinApp

- <http://www.vmware.com/products/thinapp/overview.html>

#### Citrix XenApp

- <http://www.citrix.com/English/ps2/products/product.asp?contentID=186>

#### Symantec SWV

- <http://www.symantec.com/en/uk/business/solutions>



### For More Information:

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