

**Microsoft® SoftGrid®**  
Simplifying Large-Scale  
Windows® OS Migrations

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## Introduction

This white paper discusses how Microsoft's SoftGrid® application virtualization and streaming enables organizations to streamline and accelerate enterprise-scale Windows XP and Vista migrations, eliminating key pain points and lowering the barriers of time, cost and effort involved.

The paper highlights the challenges inherent in these OS migrations, including significant time and cost requirements, and business interruption and end-user downtime. It then demonstrates how SoftGrid's virtualization, centralization and on-demand capabilities enable IT to overcome these issues, ensure business continuity and build the foundation for a flexible, responsive IT environment. Finally, real-world examples showcase how global organizations have leveraged SoftGrid for major OS migrations.

## Barriers to Windows OS Migrations

Migrating users to a new platform is an incredibly resource-consuming endeavor. This is particularly true for Windows OS migrations, which tend to be enterprise-wide. In fact, many IT organizations are reluctant to begin large-scale OS migrations because of the issues they inevitably have to tackle:

- **Testing / deploying process is extensive:** Enterprise-wide roll outs are tremendous undertakings. Some organizations attempt to reduce the resources required by using electronic software distribution (ESD) to push new applications to users instead of sending technicians to each desktop, laptop and server. However, because 30-40% of Windows applications conflict with one another when installed, the failure rate for even ESD-delivered applications can be quite high, requiring more troubleshooting time for IT on the back-end. To minimize this, IT firsts regression tests all applications – even those packaged into MSIs for ESD – for conflicts that can result from multiple applications requiring different versions of the same DLL, writes to same location in the registry, and a host of other system-level files installations that permanently alter the operating system. For applications that do not pass the regression test, further time is needed to determine how to work around the conflict.

Regardless of regression testing, configurations and settings build up within the operating system over time, making it increasingly difficult to install applications that are upgraded for new versions of the Windows OS, let alone uninstall older versions.

Because enterprise OS migrations often comprise hundreds of applications and thousands of computing devices and users, IT organizations often need to pull resources from other projects. It is not surprising that IT hesitates to initiate these migrations.

- **User uptime – and business continuity – are compromised:** OS migrations do not only affect IT workers' ability to do their core jobs, they also impact end users in the business units. IT must install new applications at the back-up site and desktop each time a change is made at the live site. Migrating entire desktops typically translates to user downtime when IT uninstalls existing applications and loads the new ones. Many departments and key functional areas go into standstill mode for hours – or even complete days – when their computers are down, slowing business dramatically.
- **Previous fixes create new problems:** In order to get applications to run on the same computer, IT often needs to change configurations and settings. These hard-coded alterations are not without consequence, however. Such work-arounds often make applications incompatible with the new operating system and create extra work for the IT team.

## The SoftGrid Application Virtualization Solution

SoftGrid eliminates major Windows OS migration pain points, accelerating and simplifying deployments, and saving IT organizations significant money. By enabling zero-touch to the desktop, it delivers immediate and long-term desktop management benefits:

- **Virtualization:** SoftGrid transforms Windows applications from products that must be installed into virtual services that can be deployed and managed centrally to desktops, laptops and servers. To eliminate application conflicts, SoftGrid does not write files directly to the operating system files, including the Registry, but instead accesses them via its virtual "sandbox," a protective run-time environment called SystemGuard™ that executes programs without altering the host computer and keeping the operating system pristine. The applications bring their own set of configurations with them – so they do not need local configurations. However, because the applications execute on the client, access is fully available to all local services including cut and paste, OLE, printing, network drives and attached devices.
- **Dynamic delivery:** SoftGrid's innovative on-demand delivery technology enables immediate roll out to thousands of users. Rather than "pushing" down and installing entire applications, the first time an application is requested by end users, the SoftGrid client rapidly responds and "pulls" only the code needed (typically 20-40%) from a central SoftGrid Server. Applications launch within seconds, based on application size and connection speed. When the session terminates, application settings and profiles are cached on the local computer, providing instant access for subsequent use with little impact on bandwidth. Not only does this result in no performance degradation, it also enables zero-touch to the desktop, saving tremendous time.
- **Centralization:** SoftGrid's centralized management capabilities further simplify OS migration administration. Operating from a single console, IT can quickly provision all applications to groups or individuals. The entire SoftGrid application management process is centrally administered using Microsoft's Active Directory to assign users application rights and the Microsoft Management Console to oversee servers and applications. If versions need to be refreshed down the road, IT simply takes away the rights to the application and provide rights to the new one. Again, zero-touch to the desktop. Since applications are turned into services (without any re-write to application code), usage data (who used what application and for how long) can be viewed in real-time and license compliance is vastly improved since access is checked and recorded each time a user requests an application.
- **Business continuity:** SoftGrid helps ensure smooth OS migrations. Multiple versions of the same application can run on the same computer simultaneously, enabling older versions to run on the user's computer until the OS migration is finished so that users don't experience any downtime. In addition, because virtualization turns applications into data files that can be treated and replicated like data, it makes them easier to manage in disaster recovery situations. Applications are kept up-to-date between live sites and back-up sites by automatically replicating virtualized applications files on the live sites' SoftGrid servers with the SoftGrid servers at the back-up site. This not only provides dramatic time savings, it also reduces end-user downtime to minutes instead of hours or days in case of a disaster.
- **Flexible IT Infrastructure:** Static computing environments – where everything is hard-coded together, from the applications that are installed to the operating systems that are tied directly to specific computers– dramatically reduce IT's ability to respond to change in real-time, severely limiting an organization's agility.

In contrast, SoftGrid enables IT to create the flexible, dynamic infrastructure required to be responsive to changing business needs. It untethers applications from systems and departments. Its service-oriented architecture can be easily scaled to thousands of users, facilitating organizational growth. It simplifies organizational changes and reductions by easily reharvesting concurrent licenses. Because IT staff never have to install or regression test applications, future migrations, updates and patches are fast and simple. And new, business-critical applications can be quickly packaged and deployed to users enterprise-wide.

## The SoftGrid ZeroTouch Advantage

SoftGrid includes ZeroTouch™, the front-end system that enables real-time worldwide availability to applications in a secure, self-serviced environment. Companies that use ZeroTouch in conjunction with SoftGrid vastly simplify provisioning, access and reporting of applications virtualized by the SoftGrid platform:

- **World-wide availability:** Users get universal access to all their applications – even their entire desktop – from any computer anywhere, aggregated on a single web page and/or within a Windows desktop.
- **End-user self-service provisioning:** Finally, self-service is safe for the enterprise. End users can self-provision new and updated applications that they are approved to use and immediately run them without the risk of application conflicts breaking their production environment and tying up help desk resources.
- **Real-time intelligent application deployment:** ZeroTouch provides the intelligence needed to optimize application delivery. Based on real-time information about a user's network, application and device, ZeroTouch determines the best way to deploy an application to a user – either delivering it directly to the device or processing it at the datacenter on a Terminal Server and presenting the graphics on the desktop.
- **Automated workflow:** Application allocation is handled by workflow controls that set the authorization chain of command. These are set up once and executed via a portal or integrated into standard email.
- **Business-unit software usage reporting:** Business managers can get real-time, detailed reports of application usage on their own at any time, without relying on IT.

## Real-world Enterprise Windows OS Migrations

As major financial services and energy corporations have found, using SoftGrid speeds and simplifies Windows XP migrations, enabling them to devote a fraction of the time and resources traditionally needed, and establishing a flexible infrastructure for the future.

### Major Energy Corporation

A large Canadian-headquartered energy company services a widely heterogeneous environment, including end-users at headquarters, branch offices and remote locations such as oil rigs. They support over 1,400 applications on desktops and servers, comprising commercial packages such as Interplant, SAP, Oracle and Outlook, and in-house developed software.

In March 2004, the company began planning an enterprise-wide migration to Windows XP and needed it to be largely completed in record time – by the end of 2004 – before a planned IT lockdown that would free IT to focus on a major SAP implementation. Prior to this project, all their applications had been installed locally and deployed using ESD when possible and by manual, on-site deployment when, for example, images could not be pushed to workstations.

The energy company faced a number of challenges in executing the XP migration:

- **Lengthy packaging for ESD and time-consuming regression testing:** It took an approximately 63 hours per manually deployed application set and 35 hours for ESD-delivered application sets, for an overall average of 49 hours.

- **Difficulty managing such a large volume of applications across North America:** With 4,200 named desktops and 800 Terminal Server Licenses, decentralized management made it challenging to keep a handle on who was using what applications, changing needs, redundancies, etc. This also made license management extremely difficult.
- **Inability to run multiple versions of applications on the same machine at the same time:** Because of its M&A activity, employees who came from different organizations often use different versions of the same software.
- **Single point of failure and downtime risks:** Employees at oil refineries work around the clock in multiple shifts. IT needed to ensure 24x7 application up-time but did not have an effective disaster recovery strategy.
- **Failed ESD installations:** Up to 20% of application deployments using ESD “push” technology failed and could not be rolled-back once deployed.

Using SoftGrid to overcome these challenges, the energy company successfully virtualized and deployed over 1,300 applications in just 3.5 months, and realized several other key benefits:

- **Reduced time to prepare and roll-out each application set:** With SoftGrid, they reduced this time from an average of 49 hours to just four hours. The manual, time-consuming portions of the process – testing current applications against new ones and regression testing – were entirely eliminated.
- **Ensuring end-user uptime during XP migration:** The company wanted to ensure that, during the XP migration, users wouldn’t have any downtime. During updates in the past, users may have had to go without key applications for several hours or days while the servers or desktops were re-installed and re-imaged. With its oil refineries operating around the clock, they needed to ensure that employees on all shifts would have maximum uptime, even when IT headquarters wasn’t in the office. They achieved this with SoftGrid.
- **Enabled zero-touch to the desktop and higher quality IT service:** In the past, whenever an end-user had problems that couldn’t be solved by talking them through the issue over the phone, IT had to take possession of the computer to troubleshoot it. With SoftGrid’s virtualization and centralized management, IT never has to manually troubleshoot application issues. Now, in the case of a failed computer, rather than needing to install a whole new set of applications, IT can refresh the applications from its own console and, based on the users’ credentials, they’ll automatically get access to a fresh application set.
- **Enhanced license compliance and re-harvesting between business units:** Maintaining license compliance was a painful process prior to SoftGrid. IT was never certain who was using what applications at the various locations. Because SoftGrid enables centralized management and usage tracking, they can now run live reports of what people are using and not using, and how often they use an application. The company can build policies regarding how to extend licenses and, if someone isn’t meeting the threshold, can reclaim the license token, eliminate the user’s right to the application, and extend it to another user.

## Major Financial Services Company

This financial services organization has an IT department that is responsible for infrastructure development and application support (deployment and management) for end-users worldwide, including the Americas, EMEA and Asia Pacific. Their applications range from CRM packages to mission-critical trading systems. They were conducting a Windows XP migration of 800 applications to end-users at large company campuses, small branch offices and on disconnected laptops.

The company faced several major hurdles:

- **Desktop siloing:** End-users needed access to applications that conflicted with each other or needed to run multiple versions of the same application. The only solution for these users was to provide them with multiple desktop computers.

- **Slow break/fix response:** If a computer failed (hard drive crash, other), it would take upwards of two hours to replace the computer, install the operating system, and then install the end user's applications.
- **Lengthy packaging** for ESD and failed ESD installations
- **Manual end-user functionality testing**, requiring separate desktops and network connections that had to be installed for each end-user test instance, or a visit by the end-user to the lab (which was often hard to schedule).
- **Lengthy desktop un-installs and re-installs** for job turnovers (end-users changing roles) that also resulted in significant end-user downtimes.

By virtualizing applications SoftGrid enabled this company to virtualize over 100 applications in just 30 days and create an on-demand, dynamic IT environment:

- **Create an infrastructure to deploy applications on as-needed basis:** Rolling out new applications had become increasingly difficult and time-consuming as installation configurations conflicted with existing settings. Best practices for eliminating this complexity are to refresh Windows desktops every 1-2 years. However, this company's scale of users and number of applications supported made this impossible. The last time they did a major desktop refresh was in 1999 when they redeployed their NT4 desktops in preparation for Y2K. However, with SoftGrid they were able to refresh to XP very quickly and easily.

SoftGrid's centralized management and virtualization capabilities also enable IT to be much more responsive moving forward. They accelerated their MAC (Moves, Add & Change) process and enabled quick break/fix turn around, which translates to minimal user downtime.

- **Automate application replication for business continuity:** The plan for business continuity in case of an unforeseen disaster was to move users to a new location and provide them with access to desktops that connected to terminal services servers with key applications plus a set of locally-installed applications that would not run on the servers (due to conflicts). This meant that each time they deployed a new application or upgrade, such as to XP, they also had to synchronize both the desktops and their servers by physically installing the applications.

With SoftGrid's on-demand delivery, the only portions of the infrastructure that need to be synchronized are the SoftGrid Virtual Applications servers. As long as the SoftGrid servers have been replicated with the latest SoftGrid - enabled application files, then the rest of the environment will automatically have access to the latest applications.

In addition, the company now provides SoftGrid-enabled desktops for users who move to a new LAN-based location. By simply logging in with their credentials, end-users will have access to all the most-recently updated applications they had at their initial location.

## Conclusion

Many IT organizations would prefer not to do massive Windows OS migrations because of the resources they consume. However, in most companies this will not deter the project. With SoftGrid, they can speed and simplify OS migrations, taking a fraction of the IT time and resources traditionally needed. This not only results in a well-implemented migration, it also establishes the flexible, cost-effective infrastructure needed to support evolving business and market demands.

To learn how SoftGrid can help you please call us at +1 877.763.8737 or email [softinfo@microsoft.com](mailto:softinfo@microsoft.com).