



Windows® 7 for Apps: A Migration Lesson Plan for Educational Institutions

Universities and K-12 school systems will soon face the challenge of application, hardware and deployment readiness when migrating to Windows 7. Benefits abound when a strategic Windows 7 migration plan is in place.

- Universities and K-12 school systems throughout the U.S. are putting away their overhead projectors and paper-based teaching aids. Today, leading-edge coursework is all about interactivity with collaborative, virtual learning as a primary objective. Distance-learning sessions are springing up around campuses and schools worldwide, and education's reliance on software-based instruction is increasing year by year. For education IT executives, these new classroom environments mean the need to support increasingly shared multimedia workloads and a slew of new and varied applications—all while keeping traditional legacy applications flowing smoothly.

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In the summer of 2011, education IT professionals at all levels also will likely have the desktop environment with which to contend. Most will be spending the educational off-season migrating from the outdated Microsoft Windows® XP operating system to the modern Windows 7. As most educational institutions have foregone the migration to Windows Vista®, migration won't be a choice, it will be a must. As of October 2010, Windows XP licenses will no longer be sold through retail or OEM. While Microsoft will provide support for Windows XP through April 2014, it is doing so on an extended support basis only, which limits support to security fixes. By early- to mid-2012, finding Windows XP-compatible software and hardware will be nearly impossible, industry watchers predict.

By migrating to Windows 7, IT staffers will avoid impending support issues with Windows XP and the education sector will realize a variety of benefits. In general, these include the following:

- **Improved performance:** In Dell benchmarking tests comparing older systems running Windows XP to newer systems with Windows 7, boot time dropped by up to 29 percent, files opened nearly 54 percent faster, the resume-from-standby process sped up by as much as 73 percent and battery life improved by up to 85 percent.
- **Enhanced security and compliance:** Windows 7 is better than its predecessors at protecting data and eliminating unwanted applications from the network, thanks to new and improved security features such as BitLocker, BitLocker To Go, AppLocker, DirectAccess and user account control.
- **Better manageability:** Windows 7, especially when combined with the Microsoft Desktop Optimization Pack (MDOP), makes it easier to manage and deploy desktops, laptops and virtual environments.
- **Stability:** Building on advances made in the Windows Vista operating system, Microsoft focused on creating Windows 7 to run quickly and reliably and to recover from application crashes gracefully.

Early education adopters understand the value of these and other benefits. For example, Christopher Rhoda, vice president for information services at Thomas College, a private liberal arts college in Waterville, Maine, says "Windows 7 helps improve user productivity. Windows 7 starts faster, and users log in faster. Their applications run faster. Windows 7 assists the IT depart-

ment by enhancing the security of our computing environment."

Thomas, which already has converted approximately 200 Dell OptiPlex™ 760 and 755 desktops and Dell Latitude™ E6500 and D630 laptops from Windows Vista to Windows 7, used Microsoft Windows Deployment Services for the migration. That's made a substantial difference: "We can deploy an image onto a machine now in half the time that we could under Vista—about 20 minutes is all it takes, as opposed to 45. We saved more than 80 hours," Rhoda says.

How to "sandbox" applications that won't work with Windows 7

Education IT departments have many options for supporting must-have but incompatible applications in the short term using virtual environments on Windows 7. Here are three: XP Mode, Microsoft Enterprise Desktop Virtualization (MED-V) and Microsoft Application Virtualization (App-V):

- **XP Mode** is mostly for consumer use.
- **MED-V** provides a centralized management console that allows administrators to deploy and control a virtual XP environment on individual computers, and it is the best enterprise option from Microsoft.
- **App-V** primarily serves to reduce conflict among applications rather than eliminate Windows 7 compatibility issues. MED-V will enable enterprises to proceed through a migration without stalling out over support for red applications.

Keep in mind that MED-V (as well as alternatives) should be used for the short-term only. In addition, it is best-suited for use with installations of fewer than 5,000 nodes. Larger deployments will require additional instances and duplicate management tasks on each.

Finally, applications do not perform as well in the virtual XP environment as they will natively and patching requires special processes. In the long run, education IT professionals need to upgrade applications to versions that can take full advantage of hardware and Windows 7 performance enhancements.

Application Lesson Plan

Education IT professionals who have not yet started planning for summer Windows 7 migrations don't have time to spare, even at smaller schools, warns Jefferson Raley, Manager East Region and Global End User Computing and IT consulting for Dell. "These organizations need to be deep into application compatibility testing now to prepare for a move this summer," he says.

Application compatibility testing, along with inventorying applications ahead of time and then remediating and packaging applications after the testing, will present one of the biggest challenges for education industry IT professionals as they prepare for and undertake a Windows 7 migration. To help, Dell has compiled application-readiness best practices. Relying on Dell experts during this phase can help education IT organizations achieve Windows 7 migrations in a straightforward, efficient and cost-effective manner.

The first step is discovering what applications are in use—often easier said than done. The truth is, Dell has found that most IT departments only manage about 25 percent of the applications in the environment. The percentage may be a little higher in K-12, but lower in higher education, Raley says.

In fact, inventorying applications in higher education can be particularly arduous, requiring a lot of detective work, he adds.

At the university level, IT typically gives individual colleges and professors leeway to make application decisions without oversight. "In higher ed, teaching staff tend to work independently, obtaining applications needed to do research, for example, by one professor or a team," Raley says. "These are critical applications, yet nobody necessarily knows about them except for the professors themselves."

While that's all well and good most of the time, the situation means trouble for an operating system upgrade—assuring continued availability post-migration means knowing those applications exist, testing for compatibility and remediating as necessary. The same needs to be done at the K-12 level, but since IT more tightly controls application decisions at that level the process isn't as troublesome, Raley adds.

For application discovery, education IT often starts simply by asking users what applications they have in place, but that does not suffice as a best practice for a Windows 7 migration. IT must supplement these efforts with software discovery tools. In its engagements, for example, Dell catalogs executables on each

PC and then uses a titling engine to identify and filter those by title, publisher, version and functional category against a database of more than 100 million executables. Analyzing the data, Dell identifies targets for rationalization by filtering out unnecessary applications, multiple versions of the same application and applications with redundant functionality.

Using industry-proven best practices for application rationalization, Dell will recommend whether to retain, retire or upgrade targeted applications. It bases those recommendations on five criteria: duplicate and redundant application functionality, use of the application, licensing costs, support costs, and Windows 7 compatibility.

Once the final application list is determined, Dell will test every application, using automated and/or manual techniques as appropriate, for compatibility with the new operating system. It will do so on a tiered basis, having identified the criticality of each application during the rationalization process:

- **Tier 1 applications:** Critical to everyday operations, these applications are vetted by a highly skilled expert in a manual process that involves installing the application, running through test scripts and fixing problems as they arise.
- **Tier 2 applications:** These applications are important to the school, but if a few issues crop up, post-migration operations won't come to a screeching halt. At Tier 2, Dell uses automated tools to test for application compatibility with Windows 7 and remediates those as issues appear. Automated testing delivers an 85 percent rate of accuracy, Raley says.
- **Tier 3 applications:** Dell classifies applications that IT historically hasn't supported and doesn't plan to support as Tier 3 applications. It puts these applications through the same automated testing as it does in Tier 2, but provides no remediation. IT can communicate back to the user that the applications have been tested and won't work with Windows 7, "as a courtesy more than anything, since it doesn't support them," says Raley.

As it tests applications, Dell classifies them as "green," or compatible with Windows 7, "yellow," which signifies the need to address compatibility issues through remediation and packaging, and "red," which means the application is incompatible and should be replaced or, if that's not a near-term possibility, virtualized.

In the final stage of the application prep work, Dell

gathers installation instructions and requirements on all applications that need packaging, and then converts target applications to the appropriate package format. Doing so enables silent, unattended installs with minimal onsite engagement during this phase and, therefore, lower costs.

In addition, Dell facilitates the user acceptance testing process to ensure the final application package meets IT's approval before it's deployed to end users. Once approved, Dell can configure the package for electronic distribution via a number of tools, depending on requirement.

Lessons Learned

Hoover City Schools is one example of a K-12 system that has taken advantage of Dell's help to ensure that all its critical applications will run on Windows 7.

"Dell is a Global Application Compatibility Factory partner for Microsoft, so we partnered with Dell for application compatibility testing," says Keith Price, chief technology officer at Hoover City Schools, the third-largest city school system in Alabama. "Dell saved us months of testing time. They helped us identify which applications weren't directly compatible with Windows 7 out of the box, and helped us find solutions for making them work. This allowed us to leap forward in our deployment of Windows 7, and saved us the expense and hassle of replacing those applications."

As important as it is, application-readiness is just one piece of the Windows 7 migration journey. Determining hardware- and deployment-readiness are also critical. To determine hardware-readiness, educational IT professionals must evaluate whether PCs and peripherals are compatible with Windows 7. If not, they need to oversee upgrades or new system installs and conduct the requisite user training and support. Deployment-readiness requires that they assess the environment, staffing and processes, many of which are outdated or inadequate.

Short-changing or handling any of these three steps incorrectly can turn the migration to Windows 7 into a more time-consuming and costly exercise than necessary, not to mention downright disruptive.

Fortunately, Dell can help with hardware- and deployment-readiness, too. Having already migrated hundreds of thousands of systems with proven results, Dell services personnel have the experience, expertise, and

processes to finesse this monumental undertaking and produce excellent results. With Dell's help, organizations can speed time to deployment and productivity, while reducing the risk, complexity and costs of migration.

For the education sector, Raley says, Dell's automated approach to PC and operating system deployments is particularly useful. "While most corporations have done a pretty good job of implementing automated tools such as Microsoft System Center Configuration Manager, many K-12 and higher education organizations have not, so they're behind on automation. Plus, they also have to deal with a wide variety of people—professors, staff, students—and some computers are owned by the individuals and some by the school. Building a solution to deploy Windows 7 automatically to all those different types of computers is pretty complicated—and that's where Dell can really help," he explains.

Dell's optimized deployment framework integrates patent-pending tools, factory-assembly processes and fully managed deployment services. It begins with a detailed assessment of current processes, then creates a hardware-agnostic image, sets up automated deployment tools, and conducts a pilot deployment. Once the pilot concludes, Dell begins volume deployment.

Depending on a particular school's requirements, Dell selects from a variety of automated tools to streamline the Windows 7 deployment. Its quiver of automated deployment tools includes Microsoft SCCM, Microsoft Deployment Toolkit and the patent-pending Dell Automated Deployment (DAD) tool, which allows IT organizations to deploy the full desktop system largely offline.

Learn from the Masters

Dell has organized its Windows 7 services around migration planning, application management, and deployment. It takes a lifecycle approach by offering a complete solution from the beginning stages, through the services, software and systems needed for the migration, to the deployment, ongoing management, and support of the solution even after the migration is complete.

Undoubtedly, K-12 and higher education institutions will appreciate and benefit from Dell's studied approach to Windows 7 migration. Dell experts can provide a smooth, steady and cost-effective migration process that results in a great end-user experience.