

# Finding and Analyzing Migration Costs for Windows Vista

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It will cost less for organizations with well-managed PCs to migrate to Windows Vista than those whose PCs are less tightly managed. The Gartner model shows that when companies rely on PC hardware attrition, they can cut migration costs by 40% to 60%.

## ANALYSIS

Most organizations will eventually move at least some of their users to Windows Vista during the next few years. What keeps organizations from moving more users or moving faster is the difficulty and cost of migration. They need to budget to buy Windows upgrades (unless they have Software Assurance on a Windows client, in which case they've already paid for the upgrade). They may also need hardware upgrades for some users, which will require labor. As these costs accrue, organizations are likely to buy new PCs, making the migration less intrusive.

Organizations with locked and well-managed PCs will have lower migration costs due to fewer applications and less diversity to test and migrate, as well as the benefit of automation provided by most desktop management tools. Gartner's migration cost model shows that a company can migrate a well-managed PC to Windows Vista for almost 32% less than an unmanaged PC, and that the IT labor cost component to migrate an unmanaged PC is more than double that of migrating a locked, well-managed PC.

## The Model

Like many Gartner cost models, the Windows Vista Migration Cost Model is a stalking horse (see Note 1). In our model, we look at an environment with 2,500 users, and assume there are 15 groups of 133 users per group, some local support staff, and that all users will be migrated relatively quickly in a cohesive project. For remote users and branches, travel costs and other lost hours or economies of scale need to be considered (see Table 1). Use your numbers in the Gartner model.

## Types of Costs

- **Enterprise fixed costs** are more of a step function – that is, costs do not increase or decrease directly with the number of users, but may still increase or decrease with more or fewer users. Thus, if 100 users cost \$100, 101 users won't cost \$101, but 200 users could cost \$150. These costs include application testing, packaging, technician training, project management and other administrative costs.
- **Group fixed costs** cover tasks done to prepare a group for migration. The definition of a group is fairly arbitrary, but our assumption is that the users will be divided into groups according to geography, business unit or another designation. Before the migration for a particular group, a deeper level of analysis is performed and the users are trained. After the migration, there is on-site support to address early issues or questions. This support

**Table 1. The Windows Vista Migration Cost Model**

	W2000/XP to Windows Vista (Structured-Task Workers)			W2000/XP to Windows Vista (Knowledge Workers)		
	Unmanaged Users	Typically Managed Users	Well- Managed Users	Unmanaged Users	Typically Managed Users	Well- Managed Users
Migration Costs — "Forklift"	\$1,486	\$1,444	\$982	\$2,003	\$1,923	\$1,227
Migration Costs — "Hardware Attrition"	\$651	\$677	\$399	\$1,041	\$1,140	\$655
Project Savings	-56%	-53%	-59%	-48%	-41%	-47%

Source: Gartner

**Table 2. Migration Cost per User**

	Structured-Task Workers			Knowledge Workers		
	Unmanaged	Typically Managed	Locked and Well- Managed	Unmanaged	Typically Managed	Locked and Well Managed
Hardware and Software	\$575	\$575	\$522	\$813	\$813	\$638
IT Labor	460	402	244	738	603	334
End-User Operations Labor	448	465	213	448	504	252
Tuition	3	3	3	3	3	3
<b>Total</b>	<b>\$1,486</b>	<b>\$1,444</b>	<b>\$982</b>	<b>\$2,003</b>	<b>\$1,923</b>	<b>\$1,227</b>

Source: Gartner

will offer a higher level of support and reduce strain on the help desk to make the migration more successful.

- **Individual variable costs** include the labor to migrate each PC or user, including backing up data and settings, adding memory, delivering new PCs (excluding hardware costs), re-imaging PCs with Vista and the standard organization build, restoring data and settings, and reinstalling applications not in the standard build.
- **Hardware and software** are largely individual variable costs, but we list them separately because some are readily known organizational costs. Separating them makes it easier for organizations to make their own assumptions on how much these will be.

### General Assumptions

The three levels of management we use here correspond to the ones we publish in our total cost of ownership (TCO) model. These are three points of an infinite number of points on a line that represents anarchy on one end and the strictest lockdown on the other. The management levels we publish are:

- **Unmanaged** – Relatively few tools are used to do inventory, software distribution or patch management; users are administrators of their own PCs.

- **Typically managed** – Users are usually administrators, but tools are used for a portion of the environment; processes and policies may not be fully formed or implemented.
- **Locked and well-managed** – We assume that users are not administrators and tools are used to manage all the PCs, along with processes and policies. Because these users are not administrators and cannot install their own programs, we assume half the number of applications in these scenarios.

### User Types

We have created two models based on user type. We look at the migration costs for structured-task workers and knowledge workers. The basic assumption is that knowledge workers will need to run many more applications than structured-task workers. This increases the cost to upgrade knowledge workers in several areas. All labor concerning application testing or remediation will be higher for knowledge workers. The cost of buying new or upgraded versions of applications will also be correspondingly higher for knowledge workers. The basic assumptions for each user type in the model are in the variables section at the top of the model.

## Results

### Structured-Task Workers

We assume that our 2,500 structured-task workers run a total of 30 custom, in-house developed applications and 30 packaged applications. In a locked, well-managed environment, we assume 15 packaged applications. Our model organization typically spends \$982 per user in a locked, well-managed environment, \$1,444 per user in a typically managed environment, and \$1,486 to migrate each structured-task worker in an unmanaged environment (see Table 2).

The cost difference to move a typically managed user is not significantly lower than the cost to move an unmanaged user because we assume that in both cases the same number of applications must be migrated and that the migration will be largely manual. Also, we assume that the typically managed users will need updated applications repackaged for software distribution at a significant cost (more than \$31,000 for structured-task workers and more than \$100,000 for knowledge workers). This extra cost, which does not exist for unmanaged users, will lead to lower TCO, so the distribution will pay for itself. Also, remember our other assumption: Not all users in the typically managed environment are managed by tools. This means that the packaging of applications represents a significant opportunity to save more money as a greater portion of the population becomes managed. The well-

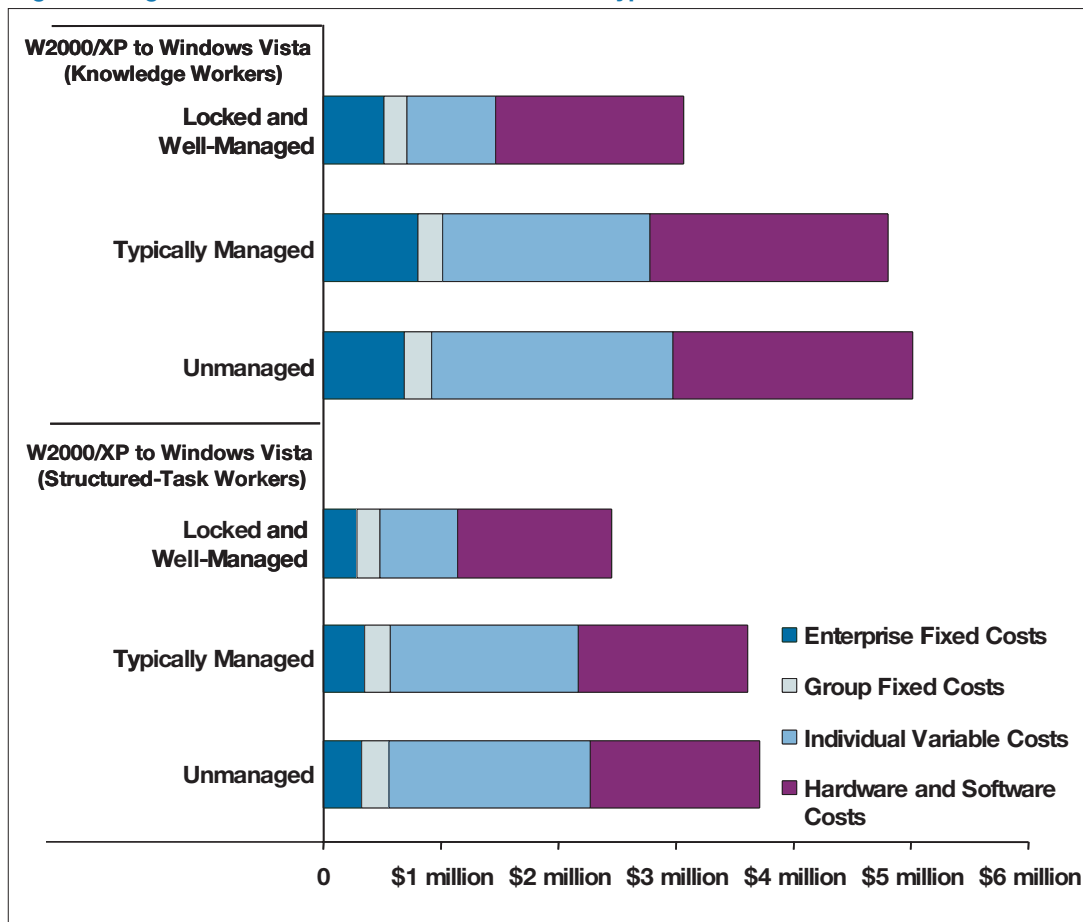
managed users will have lower packaging costs than the typically managed users because they have fewer applications to begin with, since users cannot introduce new applications that become critical to the organization and must eventually be managed.

### Knowledge Workers

Knowledge workers generally have more-diverse application needs than structured-task workers and are more likely to install their own applications to get their jobs done. For 2,500 knowledge workers, we assume a total of 60 custom, in-house-developed applications and 150 packaged applications that need to be migrated. In a locked, well-managed environment, we assume only 75 packaged applications because users do not have the capability to install applications themselves.

Our model shows that migration will cost \$1,227 per user in a locked, well-managed environment; \$1,923 in a typically managed environment; and \$2,003 in an unmanaged environment. New hardware and software, based on our estimates, account for 41% to 52% of the cost, and organizations may use these costs (especially for new hardware and upgrades) to decide whether to move users all at once or move through hardware attrition during the normal three- to five-year hardware replacement cycle (see Figure 1).

Figure 1. Migration Cost Breakdown Based on Cost Type



Source: Gartner

Individual variable costs, the cost of actually doing the upgrade, is also a large component, representing 41% of the cost in an unmanaged environment, but only 25% of the cost in a locked and well-managed environment. This is a major differentiator in well-managed environments. IT labor represents 27% to 37% of the migration cost, and end-user operations, basically lost productivity the users will experience due to the move, represent 20% to 26% of the total (see Figure 2). These costs are “soft” costs and difficult to measure, so some organizations don’t count them.

### Tools Reduce Costs

Even organizations that don’t have full life cycle management products can benefit from better use of tools. We made some basic assumptions for testing time that organizations should review and replace with their own numbers. Our assumption is that every application will be tested in a laboratory, but many organizations will not actually do this. They will test a subset of applications – their most critical and most common ones. Therefore, organizations should ensure they change this cost.

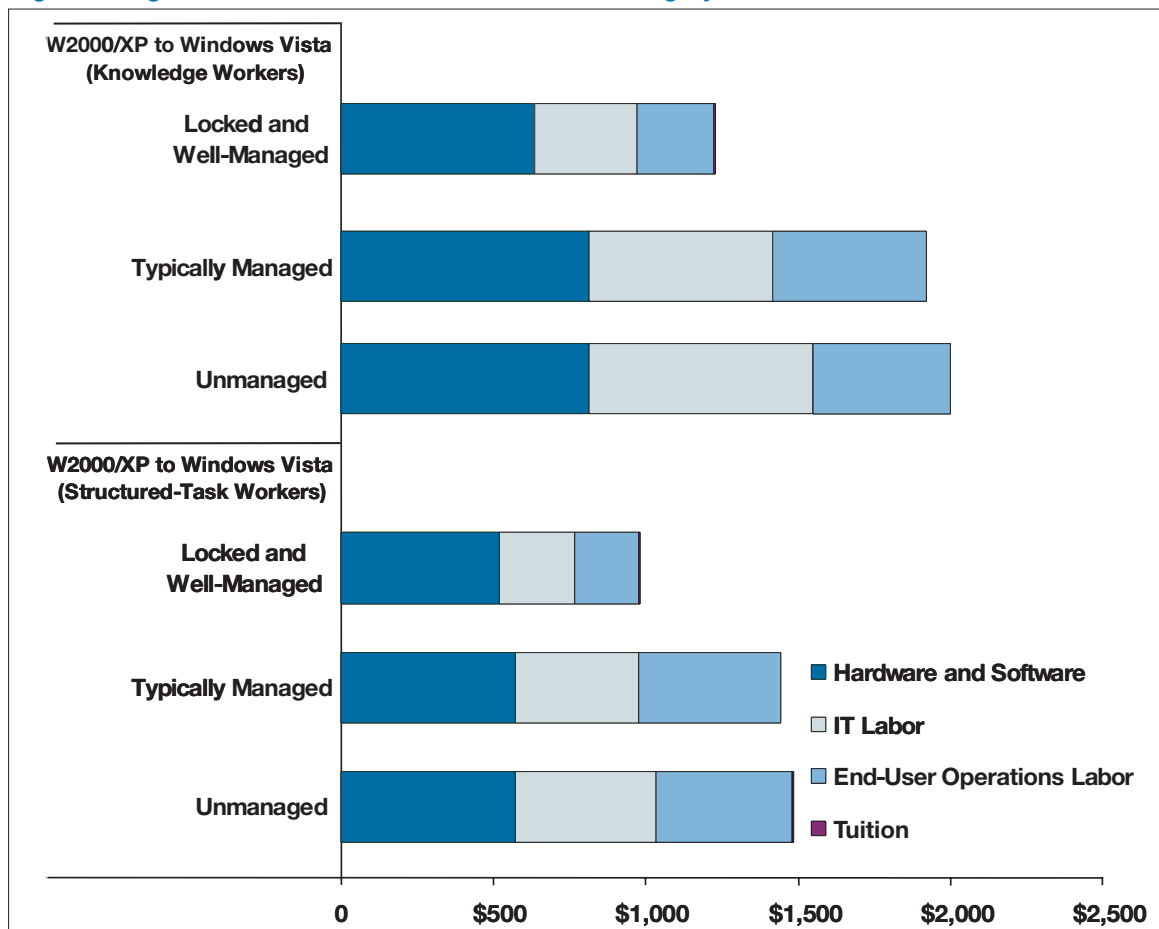
Application testing is an area where Microsoft has made a lot of progress with Windows Vista. The Application Compatibility Toolkit (ACT) v.5

([www.microsoft.com/technet/prodtechnol/windows/appcompatibili](http://www.microsoft.com/technet/prodtechnol/windows/appcompatibili)

ty/default.mspx) includes technology that helps organizations test applications without actually running them on Windows Vista. The ACT includes “update impact agents” that can run on Windows XP and Windows 2000 PCs and will monitor applications as users go about their daily work, reporting suspected problems. The toolkit also includes independent software vendors (ISVs) and community components that allow the migration team to get information more easily from the ISVs and other IT professionals who are doing application testing and remediation. ACT can reduce, but not eliminate, testing costs. Other Microsoft tools that are free of charge can also help reduce migration costs.

Tools can reduce deployment costs, too. We have been following the evolution of software distribution and configuration management vendors as they added operating system (OS) deployment functions, which, during the past several years, became life cycle management tools. Although these tools have the capability to capture data and settings, re-image a PC with a new OS, and automatically reinstall user-specific applications based on policy, relatively few organizations have reached the level where they automatically do such a migration. In many situations, the organization is too complex or lacks processes or policies to fully automate the PC re-imaging process.

**Figure 2. Migration Cost Breakdown Based on Cost Category**



Source: Gartner

## Application Development and Office Migration Costs Not Included

The costs to fix or rewrite homegrown custom applications are not included in our base model because they are so variable. We have made some basic estimates based on the assumptions indicated in the model, but they do not provide much beyond having some nonzero number to be a placeholder (see Table 3). Some Gartner clients have reported a high percentage of custom application failures, and others have had a very low percentage of failures.

We do not include the cost to move to a new version of an office automation product, such as Office 2007 or OpenOffice.org, in the Windows migration cost model. We will examine those costs in other research.

## Managed Diversity: Migrating Through Hardware Attrition

Most organizations do not meet our definition of locked and well-managed PC environments. For them, the cost of deploying Windows Vista may be difficult to justify. Even for locked and well-managed PCs, the extra hardware needed to deploy a new OS could exceed the budget. In many of these cases, migrating to Windows Vista as new hardware is purchased over a three- to five-year time frame is a viable solution and can reduce deployment costs (see Table 4 and Table 5). We have only included the costs that need to be incurred when preparing to deploy a new OS, and we omitted the cost of actually deploying the OS.

**Table 3. Application Development Migration Costs (Dollars)**

Application Development	Structured-Task Workers				Knowledge Workers			
	Low Range		High Range		Low Range		High Range	
Minor Custom Application Upgrade	100	7,000	800	56,000	200	14,000	1,600	112,000
Major Custom Application Upgrade	960	67,200	3,840	268,800	2,880	201,600	11,520	806,400

Source: Gartner

**Table 4. Migration Costs to Move Through Hardware Attrition – Part 1**

Variables	W2000/XP to Windows Vista (Structured-Task Workers)	W2000/XP to Windows Vista (Knowledge Workers)
Number of Users	2,500	2,500
Total Number of Custom Developed Desktop Applications	30	60
Number of custom applications requiring minor upgrades	5	10
Number of custom applications requiring major upgrades	1	3
Average Number of Packaged Applications per Desktop	3	10
Percentage of packaged applications that will be upgraded under W2P	15%	15%
Percentage of packaged applications that can't be upgraded and must be replaced	10%	10%
Total Number of Packaged Applications in the Enterprise	30 (For locked and well-managed organizations we will assume half this number)	150 (For locked and well-managed organizations we will assume half this number)
Varieties of Hardware to Test	4	8
Percentage of Users Requiring New PCs	0%	0%
Percentage of Users Requiring Upgraded Hardware	0%	0%
Number Departments or Groups	15	15

Source: Gartner

Table 5. Migration Costs to Move Through Hardware Attrition – Part 2

Enterprise Fixed Costs	W2000/XP to Windows Vista (Structured-Task Workers)						W2000/XP to Windows Vista (Knowledge Workers)							
	Hourly Rate	Unmanaged Users		Typically Managed Users		Well-Managed Users		Unmanaged Users		Typically Managed Users		Well-Managed Users		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	
Project Plan														
Audit	\$36	417	\$15,000	208	\$7,500	42	\$1,500	417	208	\$15,000	208	\$7,500	42	\$1,500
Needs/HW/SW Cost Assessment	50	100	5,000	75	3,750	50	2,500	100	100	5,000	100	3,750	50	2,500
Application Testing	70	692	48,440	692	48,440	346	24,220	2,402	2,402	168,140	2,402	168,140	1,201	84,070
Packaged-Application Replacement	70	720	50,400	720	50,400	360	25,200	3,600	3,600	252,000	3,600	252,000	1,800	126,000
Tier 2 and Tier 3 Training														
Tier 3 Training (5 people)	70	48	3,360	48	3,360	48	3,360	48	48	3,360	48	3,360	48	3,360
Tier 3 Tuition	-	-	2,000	-	2,000	-	2,000	-	-	2,000	-	2,000	-	2,000
Tier 2 Training (20 people)	50	120	6,000	120	6,000	120	6,000	120	120	6,000	120	6,000	120	6,000
Tier 2 Tuition	-	-	6,000	-	6,000	-	6,000	-	-	6,000	-	6,000	-	6,000
Systems Integration/Build Image/Prototype	70	240	16,800	240	16,800	180	12,600	840	840	58,800	840	58,800	540	37,800
Application Repackaging	70	-	-	448	31,360	320	22,400	-	1,632	-	1,632	114,240	1,024	71,680
Document System	70	240	16,800	240	16,800	240	16,800	240	240	16,800	240	16,800	240	16,800
Help Desk Training														

Source: Gartner

Table 5. Migration Costs to Move Through Hardware Attrition – Part 2 (Continued)

	W2000/XP to Windows Vista (Structured-Task Workers)				W2000/XP to Windows Vista (Knowledge Workers)				
	50	40	2,000	40	2,000	40	2,000	40	2,000
Develop Help Desk Class	50	40	2,000	40	2,000	40	2,000	40	2,000
Help Desk Staff Training (10 to 15 People)	36	240	8,640	240	8,640	240	8,640	240	8,640
Trainer	50	16	800	16	800	16	800	16	800
Hardware Acquisition	50	-	-	-	-	-	-	-	-
Software Acquisition	50	32	1,600	32	1,600	32	1,600	32	1,600
Ongoing Project Management	70	1,373	96,096	1,373	96,096	1,373	96,096	1,373	96,096
<b>Total Enterprise Fixed Costs</b>	-	<b>4,277</b>	<b>\$278,936</b>	<b>4,492</b>	<b>\$301,546</b>	<b>9,468</b>	<b>\$642,250</b>	<b>10,891</b>	<b>\$747,726</b>
<b>Total Enterprise Fixed Costs</b>									<b>\$466,846</b>
<b>Group Fixed Costs</b>									
Rollout Planning									
Assessment	\$50	-	-	-	-	-	-	-	-
Scheduling	50	8	400	8	400	8	400	8	400
Communications	70	16	1,120	16	1,120	16	1,120	16	1,120
Setup Training Class	50	24	1,200	24	1,200	24	1,200	24	1,200
Trainer's Time	50	75.0	3,750	75.0	3,750	75.0	3,750	75.0	3,750
Post-implementation Support	36	133	4,788	133	4,788	133	4,788	133	4,788
<b>Cost per Group/Business Unit</b>	-	<b>256</b>	<b>\$11,258</b>	<b>256</b>	<b>\$11,258</b>	<b>256</b>	<b>\$11,258</b>	<b>256</b>	<b>\$11,258</b>
<b>Total Group Fixed Costs</b>	-	<b>3,840</b>	<b>\$168,870</b>	<b>3,840</b>	<b>\$168,870</b>	<b>3,840</b>	<b>\$168,870</b>	<b>3,840</b>	<b>\$168,870</b>

Source: Gartner

Table 5. Migration Costs to Move Through Hardware Attrition – Part 2 (Continued)

	W2000/XP to Windows Vista (Structured-Task Workers)	W2000/XP to Windows Vista (Knowledge Workers)
<b>Individual Variable Costs</b>		
Backup and Installation Prep	\$36	-
Installation	-	-
New PC	36	-
Image Install	50	-
Hardware Upgrade Existing PC and Re-image	36	-
Re-image Existing PC (No Upgrade)	36	-
Role-Based Application Install	36	-
Restore and Test	50	-
User Training	28	4.00
Self-Support/Informal Training/Downtime	28	9.00
Post-Implementation Support (Help Desk Incr.)	36	0.08
<b>Total Individual Variable Costs</b>	<b>-</b>	<b>208</b>
<b>Hardware and Software Costs</b>		
New PC Hardware	-	\$1,200
	\$-	\$-
	-	-
	\$-	\$-
	\$1,200	-
	\$-	\$-
	208	208
	\$917,500	\$917,500
	7,500	7,500
	0.08	0.08
	4,425	4,425
	0.05	0.05
	322,000	322,000
	630,000	630,000
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	4.60	4.60
	9.00	9.00
	2.00	2.00
	322,000	322,000
	630,000	630,000
	280,000	280,000
	4.60	4.60
	9.00	9.00
	2.00	2.00
	322,000	322,000
	630,000	630,000
	280,000	280,000
	4.60	4.60
	9.00	9.00
	2.00	2.00
	322,000	322,000
	630,000	630,000
	280,000	280,000
	4.60	4.60
	9.00	9.00
	2.00	2.00
	322,000	322,000
	630,000	630,000
	280,000	280,000
	4.60	4.60
	9.00	9.00
	2.00	2.00
	322,000	322,000
	630,000	630,000
	280,000	280,000
	4.60	4.60
	9.00	9.00
	2.00	2.00
	322,000	322,000
	630,000	630,000
	280,000	280,000
	4.60	4.60
	9.00	9.00
	2.00	2.00
	322,000	322,000
	630,000	630,0



**Table 6. Cost Summary**

	W2000/XP to Windows Vista (Structured-Task Workers)			W2000/XP to Windows Vista (Knowledge Workers)		
	Unmanaged Users	Typically Managed Users	Well- Managed Users	Unmanaged Users	Typically Managed Users	Well- Managed Users
Migration Costs — "Forklift"	\$1,486	\$1,444	\$982	\$2,003	\$1,923	\$1,227
Migration Costs — "Hardware Attrition"	\$651	\$677	\$399	\$1,041	\$1,140	\$655
Project Savings	-56%	-53%	-59%	-48%	-41%	-47%

Source: Gartner

We can separate a Windows migration into two basic components:

- The costs involved in testing applications, training and preparing for the migration.
- The cost to actually install the new OS, including saving and restoring applications, data and settings.

The latter group of tasks is done every time a user gets a new PC; whether the OS is the same one the group had on its old PC or a new one, the costs are not much different. Therefore, when moving to a new OS through PC hardware attrition, you might not consider these costs to be part of the OS migration project. The cost of testing applications, fixing or replacing ones that don't work, and training technicians and users on the new OS must still be incurred, and those costs would be charged to the migration project.

Depending on the circumstances, our model shows that migration costs can be cut by 40% to 60% when done by PC hardware attrition (see Table 6). However, organizations should also understand the increased cost of supporting multiple operating systems on an ongoing basis to ensure that doing the migration through attrition will cost less in the long term.

### Bottom Line

Use the Gartner cost model with your own assumptions to examine your Windows Vista migration costs. Well-managed environments have significantly lower migration costs. The majority

### Note 1 Stalking Horses

"Stalking horses" are conceptual models that Gartner analysts use to stimulate dialogue with enterprises. Stalking horses do not necessarily reflect the reality of any particular IT organization. We encourage companies to perform their own analyses using our models to determine the site-specific impact of a particular change. Differences in end-user proficiency, installed-base size and implementation strategies can significantly affect an organization's costs.

of organizations will spend most of 2007 testing applications for a 2008 migration. Trying to improve manageability will help reduce migration costs and improve return on investment. Decide how to measure end-user operation costs and use hardware requirements to identify whether to move established users or only those users getting new PCs. Use automated testing tools to reduce the risk of breaking applications during OS deployment. Understand the portfolio of packaged and internally developed applications to ensure that all critical applications are included in your migration process. Examine and quantify expected benefits in light of your migration costs to decide how quickly to adopt Windows Vista.