

A Forrester Consulting Thought Leadership Paper Commissioned By VMware

The Virtualization Imperative For Client Operating System Migrations

The Critical Role That Application And Desktop Virtualization Will Play As Enterprises Move To Their Next Desktop Standard

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FORRESTER

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Executive Summary

In November 2009, VMware commissioned Forrester Consulting to evaluate firms' client operating system (OS) migration plans and the role that application and desktop virtualization will play in these plans. The purpose of this study was to highlight the key considerations associated with simplifying application deployments through application virtualization and automating desktop provisioning and management through desktop virtualization.

In conducting comprehensive surveys with 150 IT professionals, Forrester Consulting found that organizations are focused on controlling costs, improving employee productivity, and improving business processes in order to emerge from the down economy leaner, more innovative, and more flexible. Firms have aggressive upgrade plans for their desktop operating systems after many years of stagnation on the corporate desktop due to constrained IT budgets and prioritizing other projects. However, IT is facing a number of migration challenges, including application discovery, compatibility testing, remediation, and packaging and image development, delivery, and patching. As a result, IT managers worldwide are aggressively evaluating and deploying application and desktop virtualization as a means to accelerate their client OS migrations.

Key Findings

Forrester's study yielded three key findings:

- **Firms will aggressively upgrade to their next-generation desktops over the next one to two years.** Approximately two-thirds of firms surveyed plan to move to a new client OS within the next one to two years, making today a critical time for firms to plan their next-generation computing strategies.
- **IT is facing daunting challenges with application proliferation and incompatibility issues, management and security vulnerabilities, as well as increasing costs.** Firms are facing significant challenges, including hardware and software readiness and high migration costs, along with a traditional, thick client desktop OS migration, and are aggressively pursuing alternative computing strategies as a means to decouple the application-to-OS-hardware dependencies.
- **Firms are exploring application and desktop virtualization not only as a means to accelerate their desktop OS migrations but also as a superior means to deliver computing services to their business users.** IT managers are turning to application and desktop virtualization to solve the short-term challenges they're facing with client OS migrations, but they're increasingly embracing client virtualization for near-companywide deployments because of the operational benefits it affords both IT and end users.

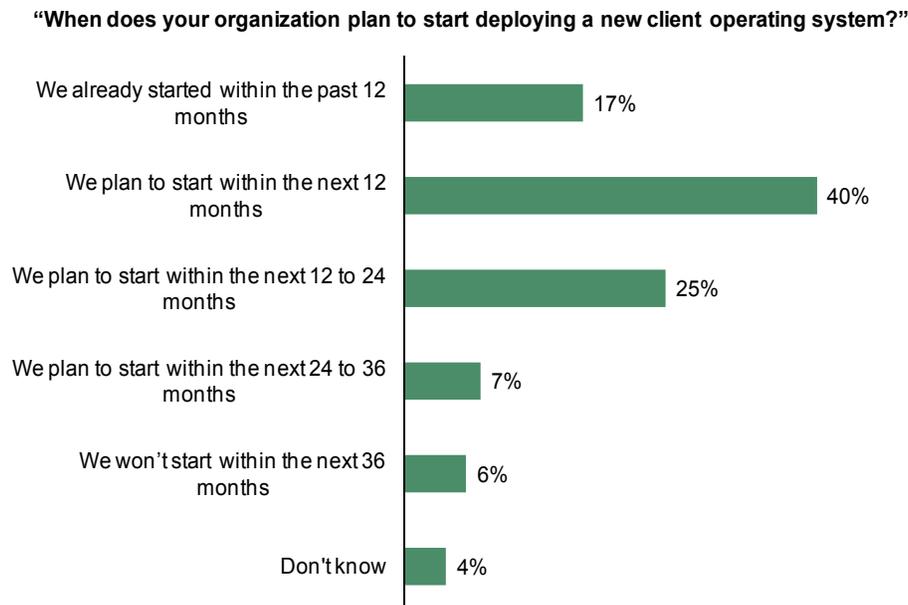
Firms Will Aggressively Upgrade To Their Next-Generation Desktops Over The Next One To Two Years

The economic recession put intense pressure on companies to reduce IT spending and re-evaluate investment priorities. This translated into further stagnation on the desktop as PC hardware life cycles extended and OS upgrades were delayed. But it also meant that IT managers had more time to develop their next-generation computing strategies and determine the role that application and desktop virtualization would serve. As we emerge from these tough economic times:

- **Nearly two out of three firms will upgrade to a new desktop OS within the next one to two years.** IT managers worldwide are prioritizing their investments in a next-generation desktop OS for a number of reasons, including end user and IT productivity enhancements, improved management and security capabilities, and concerns about end-of-life support for their current platform. Sixty-five percent of the firms surveyed reported that they'll move to a new platform within the next one to two years, and an additional 17% had already started within the past 12 months (see Figure 1).
- **Most IT managers are tying in their desktop OS upgrade with their existing PC refresh cycle.** Most of the IT managers surveyed will treat their OS upgrade and PC refresh cycles as one project, meaning that they will simply purchase or lease new desktops, laptops, and netbooks with their next-generation client OS preinstalled. This is the optimal approach for firms that have resources available and are looking to avoid the complexities of hardware compatibility testing and manual upgrades.
- **Firms are preparing for a slow and expensive rollout of their next-generation desktops.** Because their next client OS will largely be deployed in line with the natural PC refresh cycle of the business, companywide deployments will take a number of years for most organizations. In fact, almost 10% of the firms surveyed anticipate that their next rollout of a new desktop OS will take three or more years. Additionally, more than one-third of the firms surveyed anticipate that their enterprisewide rollout of their new client OS will cost \$1 million or more.

Figure 1

Firms Have Very Aggressive Client OS Upgrade Plans Over The Next One To Two Years



Base: 150 IT decision-makers
(percentages do not total 100 because of rounding)

Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, January 2010

IT Is Facing Daunting Migration Challenges, Including Software And Hardware Readiness

With aggressive client OS deployment plans, IT managers worldwide are facing common migration challenges (see Figure 2). We learned that firms struggle with:

- **Application sprawl.** Most IT managers support heterogeneous environments that include power users with full administrative rights to install software without the intervention of IT. Some firms have attempted to lock down their environment entirely, but most have found that these restrictions limit productivity, reduce end user satisfaction, and ultimately increase support costs. As a result, firms worldwide are struggling with the proliferation of applications. In fact, more than one-third of the firms surveyed support 500 or more applications worldwide and are now facing the daunting challenge of inventorying, testing, and remediating most of them for compatibility with their next client OS.
- **Application compatibility testing and remediation.** The biggest lesson learned for IT managers moving to a new client OS is to not underestimate the investment required for application compatibility testing and remediation. Firms that skipped the previous release are finding that approximately two-thirds of their applications will need to be retired, upgraded, recoded, or virtualized before they can deploy a new client OS. In fact, “resolving application compatibility issues” was rated by 82% of firms as one of the most significant

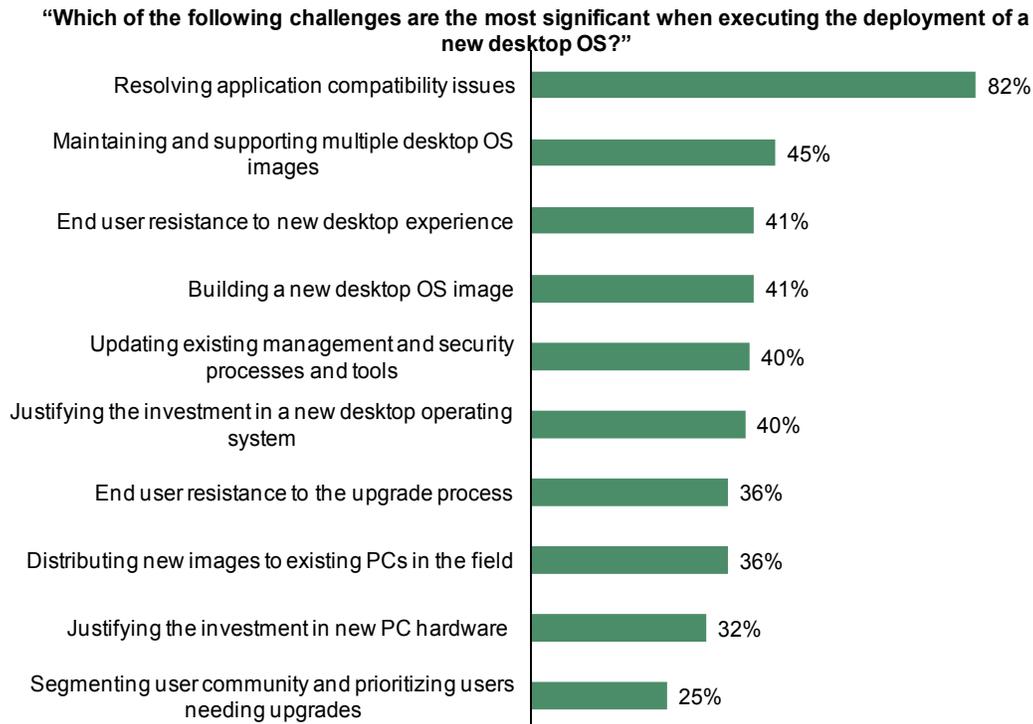
challenges when deploying a new client OS, and IT managers estimated that application testing will consume 13 weeks and application remediation will consume another nine weeks on average (see Figure 3).

- **Image proliferation, delivery, and patching.** Another significant challenge facing IT managers is image proliferation, delivery, and patching. Because of mixed user requirements for hardware specifications, language support, and application stacks, most IT departments are tasked with building, securing, and deploying multiple desktop images. The IT managers surveyed estimated that image development will consume seven weeks, while image delivery and patching will consume an additional 11 weeks, leaving “maintaining and supporting multiple desktop OS images” as the second largest challenge facing IT with any new client OS migration.

Firms also shared concerns of their business users about the disruptive nature of a seemingly never-ending rip-and-replace cycle that IT undergoes every three to five years. A client OS migration is a major project for most IT staffs to undergo, which is why 16% of the firms interviewed outsource their desktop operations and an additional 17% will turn to a systems integrator for help with the deployment of a new client OS. But due to the disruptive nature of introducing new hardware, OSes, and potentially browser and office productivity suites every three to five years, firms are increasingly exploring alternative computing models to minimize this business disruption.

Figure 2

Firms Are Facing Hardware And Software Challenges In Deploying A New Client OS



Base: 124 IT decision-makers who plan to deploy a new operating system within the next two years (multiple responses accepted)

Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, January 2010

Figure 3

Most Firms Will Engage In Six To 18 Months Of Planning Before Their Client OS Upgrade

“Thinking about software readiness (including commercial/third-party, internally developed, and Web-based applications) specifically, how long will it take your organization to complete the following tasks (in weeks)? Please provide your best estimate.”

	Average number of weeks	Sample size
Application discovery	10	95
Application testing	13	110
Application remediation	9	98
Application packaging	7	95
Image development	7	112
Image delivery and patching	11	105

Base: 150 IT decision-makers

Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, January 2010

Firms Embrace Application And Desktop Virtualization To Accelerate Upgrade Plans

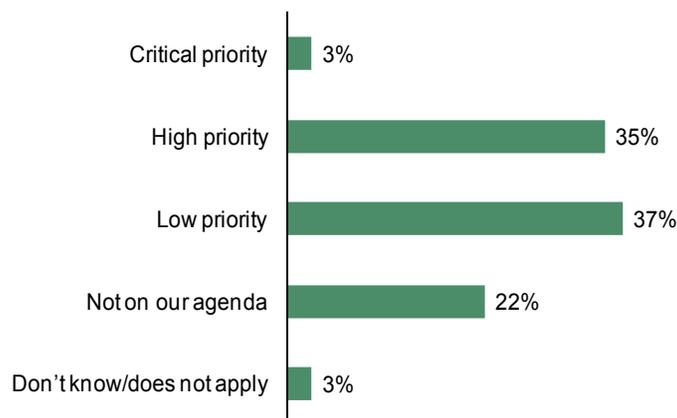
Due to many of the hardware and software complexities this paper has already touched on, IT managers worldwide are desperate for a means to break the never-ending treadmill of rip-and-replace every three to five years. This has naturally led many firms to aggressively pursue application and desktop virtualization, not only as a means to accelerate their client OS migrations but also as a more innovative way of delivering applications and desktops — and ultimately services — to their anytime, anywhere workers. In fact, IT managers reported that:

- **Three out of four are prioritizing client virtualization over the next one to two years.** 2009 was a banner year for corporate interest in client virtualization. However, adoption was mostly limited to heavily regulated industries such as government, healthcare, education, finance, and insurance, in which security, compliance, manageability, and business continuity drove deployments. Looking ahead, however, firms anticipate broader, industrywide adoption, as three-quarters of the IT managers surveyed now have client virtualization on their IT agenda in the next one to two years (see Figure 4).

- **Already one-quarter have deployed client virtualization and another 30% have plans to deploy.** IT managers understand the value of client virtualization. They cite improved data security and centralization, increased user productivity, lower support costs, improved employee satisfaction and flexibility, and stronger business continuity and disaster recovery (see Figure 5). Already, 23% of firms have fully deployed application and/or desktop virtualization to their users, while 13% plan on doing so within one year and another 16% plan on doing so within the year after that.
- **User segmentation will play a critical role in client virtualization deployments and many segments will be affected.** Firms traditionally silo their workers into three rudimentary profiles: task-based workers, knowledge workers, and power users. But these categories aren't granular enough to successfully map to client virtualization, which is why a second layer of segmentation has emerged to include mobile workers, remote workers, contractors, and software developers. Firms will increasingly undergo workforce segmentation projects prior to defining their next-generation computing strategies. Most of the targeted user segments include the traditional call center, finance department, contractors, and software developers, but firms anticipate that once these initial pilots succeed, IT will look to expand virtualization to a much broader and richer set of users including information workers (e.g., executives, Gen Yers, temporary employees), mobile workers, and power users.
- **Client virtualization will play an important or critical role in more than half of their upcoming client OS deployments.** For firms struggling with the cost and complexity of upgrading, recoding, or shimming applications for compatibility with a new client OS, application and desktop virtualization represents an alternative path to migration. More than half of the IT managers reported that client virtualization will play an important or critical role in their organization's enterprisewide deployment of a new desktop OS (see Figure 6).

Figure 4Three-Quarters Of Firms Are Prioritizing Client Virtualization Investments

“Is implementing or expanding use of client virtualization likely to be one of your organization's top IT priorities over the next 12 to 24 months?”



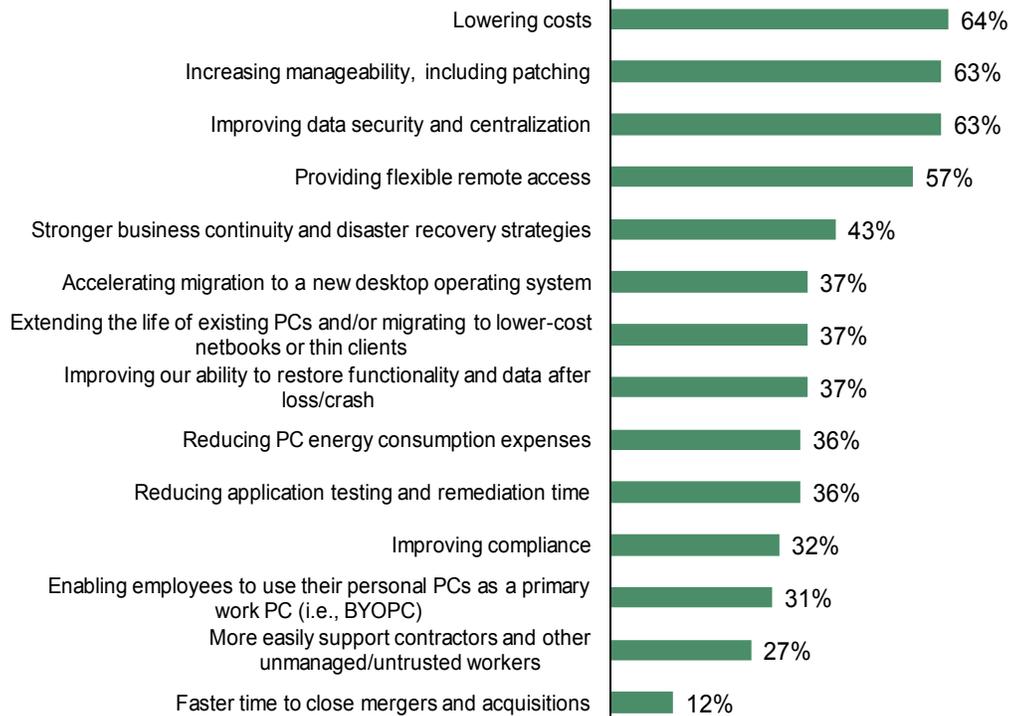
Base: 150 IT decision-makers

Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, January 2010

Figure 5

The Usual Suspects (Cost, Manageability, And Security) Drive The Most Interest

“Which of the following aspects of a traditional PC environment are driving your firm’s interest in client virtualization?”



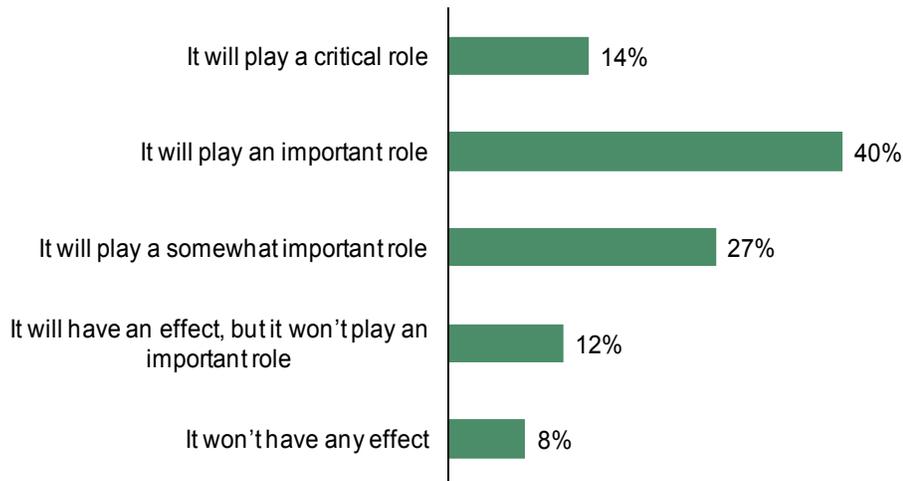
Base: 78 IT decision-makers who have implemented or plan to implement client virtualization (multiple responses accepted)

Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, January 2010

Figure 6

Virtualization Will Play A Critical/Important Role In The OS Migration Of Most Firms

“What role, if any, will client virtualization play in your organization’s enterprisewide deployment of the new desktop operating system?”



Base: 78 IT decision-makers who have implemented or plan to implement client virtualization (percentages do not total 100 because of rounding)

Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, January 2010

Firms Should Time Investments In Next-Generation Desktops And Virtualization Together

Firms worldwide reported that they’re struggling with whether to prioritize their long-term embrace of application and desktop virtualization or their short-term client OS migrations. But firms shouldn’t limit themselves to one over the other. Instead, firms should look to tie in their application and desktop virtualization investments with their impending client OS migration in order to fully realize the benefits of their next-generation desktops. We discovered that:

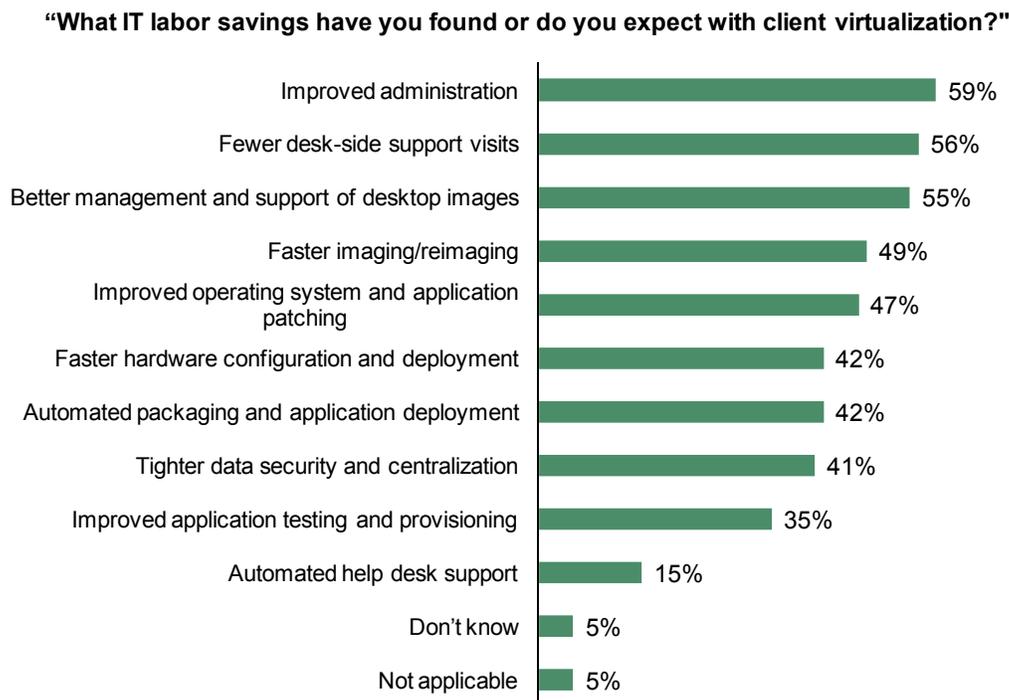
- **The economic downturn has limited investments in client virtualization but firms understand its value proposition and largely agree that it’s the future of the corporate PC.** In these financial times, it’s difficult for firms to justify potentially significant capital costs required to enable some forms of application and desktop virtualization. But as the solutions mature, new partnerships are formed, and new protocols and standards are established, getting the math to work will become much easier for IT managers who have mapped the right virtualization stack to the various user profiles they support and who recognize that over the long term the operational efficiencies will more than exceed any short-term capital investments required.
- **There are significant IT labor savings with client virtualization that firms should build into their business case.** There are a number of operational savings introduced by desktop and application virtualization, including

— but not limited to — improved administration, fewer desk-side visits, better image management, faster imaging/reimaging, and improved patching (see Figure 7). With these benefits in mind, firms are finding that it's increasingly simple to prove the value of their client virtualization investments to executive management.

- **Client virtualization adoption will increase quickly and it will be deployed within 100% of the firms surveyed by 2012.** Firms are graduating rather quickly from the proof-of-concept stage to limited deployment and enterprisewide deployment of client virtualization. Today, 53% of the firms surveyed report that their deployments of application and desktop virtualization already affect more than 500 PCs. However, by the beginning of calendar-year 2012, this figure will increase to 80% — and within these deployments, 30% will reach or surpass the 1,000-PC mark.

Figure 7

Significant IT Labor Savings Top The List Of Benefits Of Client Virtualization



Base: 78 IT decision-makers who have implemented or plan to implement client virtualization (multiple responses accepted)

Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, January 2010

STUDY CONCLUSIONS

Forrester's in-depth interviews and surveys with IT executives yielded three important observations:

- **Firms should start with application virtualization, which eradicates application-to-application conflicts and reduces delivery costs and deployment time.** Application virtualization helps significantly reduce application regression testing cycles and the deployment process, and firms can package their applications in a matter of weeks or days rather than months with little to no risk. Application virtualization helps contribute significantly to building efficiencies into IT processes by encapsulating applications into simplified images that significantly speeds application deployment, improves remote access, remediates conflicts, and reduces service desk support calls.
- **IT should mature its investments by automating desktop provisioning and management through desktop virtualization, which provides users with flexible and secure access to their desktops.** Once applications are repackaged and IT is ready with hardware, firms are increasingly virtualizing desktops so users can seamlessly transition from one desktop OS to another and IT can manage and secure these environments from a central location.
- **Armed with both application and desktop virtualization, IT managers will break the vicious rip-and-replace cycle every three to five years with leaner staff while delivering more mature, innovative, and service-aligned support to their users.** As firms grow weary of the never-ending rip-and-replace cycle every three to five years while their understanding of the strengths and limitations of client virtualization increases and they prioritize application and desktop virtualization investments due to their next-generation desktop strategies, questions about client virtualization have quickly evolved to using "when and how" rather than "if."

Appendix A: Methodology

In this study, Forrester conducted an online survey of 150 organizations in the US to better understand their client OS migration plans and the role that application and desktop virtualization will play in these plans. Survey participants included IT decision-makers who are manager-level and above. Questions asked of the participants were designed by Forrester Consulting in conjunction with VMware. Respondents were offered points redeemable for prizes as a thank you for time spent on the survey. The study was conducted in December 2009 and January 2010.

Appendix B: Demographics

In this study, Forrester conducted an online survey of 150 organizations from the US. All respondents were manager-level and above, and 79% of respondents were managers of teams within IT. Among organizations included in the survey, 25% had 1,000 to 4,999 employees; 30% had 5,000 to 14,999 employees; 9% had 15,000 to 24,999 employees; 3% had 25,000 to 34,999 employees; and 34% had 35,000 employees or more. In addition, 95% of the responding companies had 1,000 or more PCs. The study included a healthy mix of more than 18 different industries. The greatest representation was from government agencies with 16% of the sample.