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DESKTOP VIRTUALIZATION SURVEY

Changing Workstyles Drive Demand for Desktop Virtualization

Executive Summary

Today's workplace is changing fast. Workforces are being liberated from their desks and mobilized with new kinds of end-user devices to allow for unprecedented flexibility and greater productivity. What's more, employees and contractors increasingly fulfill their assignments outside the office on devices they own—and they expect their devices to be able to quickly and easily access the corporate applications and data they need to do their jobs.

These emerging virtual workstyles are putting corporate IT departments between a rock and a hard place. The pressure on IT managers and staff to deliver productive, reliable, and secure end-user computing environments anywhere anytime to just about any device is countered by an equally great pressure to control operational costs, minimize capital investment and ensure data security.

Unsurprisingly, traditional desktop management tools do not provide corporate IT departments a way out of this squeeze. That's because traditional tools force IT administrators into a one-to-one interaction with each endpoint client to perform such basic tasks as discovery, asset provisioning, software update/patching, configuration management and control, and troubleshooting. In this sort of environment, desktop

devices are expensive to deploy, provision, secure, and support.

An effective alternative is desktop virtualization, which virtualizes desktop devices by separating each one's end-user environment (operating system, applications, end-user data and customizations, etc.) from the end-user's physical desktop hardware. This changes desktop management from a one-to-one to a centralized, one-to-many paradigm in which

- Securing desktop devices and ensuring their compliance can be achieved without local installation,
- Deploying, updating, and maintaining desktop devices is less complex,
- Supporting desktop devices—including upgrades and switching between application environments as well as troubleshooting—is faster and less costly,
- Making end-users' personal desktop available to them on any device from any location boosts workforce flexibility, mobility, and responsiveness,
- Keeping end-users' personal and corporate desktops functionally separate on one device so end-users can maximize their productivity and efficiency,
- Migrating virtual desktops to work around failed endpoint devices or even entire locations makes it easier to sustain business continuity.

Citrix and TechTarget undertook the 2010 Citrix & TechTarget Desktop Virtualization Survey to determine where organizations are now on their journey toward desktop virtualization. Findings from the survey—which queried more than 470 U.S. IT executives, managers, and staff—reveal that desktop virtualization is being widely embraced. This affirms both the intense need for new kinds of desktop management capabilities and the power of desktop virtualization solutions to meet these needs.

Six key trends surfaced in the 2010 Citrix & TechTarget survey:

- **Security really matters.** IT needs to reduce the risk of data breaches and achieve broader data security and compliance—which is why the ability to lock down end-user computing environments is a key functional requirement of any desktop virtualization solution.
- **Traditional desktop management is an expensive hassle.** The list of complaints is long and plaintive—and so extensive that it's clear the days of desktop management business-as-usual are nearly over.
- **Costs are driving demand for desktop virtualization.** The need to reduce IT costs—notably administration, operating expenses, and getting apps to end-users—is so acute that it's driving implementation of desktop virtualization solutions.
- **Surprising numbers of end-user devices used for work are employee-owned.** Indeed, the shift to virtual work-

styles is happening so fast in so many companies that IT is scrambling to keep up—not only with security and privacy challenges but also to find desktop virtualization solutions that will span their needs and to cope with bandwidth and application requirements.

- **A successful end-user desktop experience depends on sufficient ease of use.** To achieve it, IT departments are focusing first on basic capabilities—an isolated OS, a desktop look-and-feel, application universality.
- **IT infrastructures are ready enough for desktop virtualization.** There's work to be done, of course, in both IT infrastructure and IT skillsets—but the viable promise of desktop virtualization cost efficiencies and productivity gains is too good to pass up.

The demographic makeup of the survey respondents is as follows:

- More than half of the respondents to this survey hold some kind of mid-level IT management/administrative job. Another 29% are IT staff.
- Although respondents come from a very wide range of industry sectors, a handful of sectors dominate in this respondent population—notably finance/bank ing/insurance/real estate, government, health and health services, computer services and consulting, education, and non-computer manufacturing.
- More than 70% of survey respondents have some kind of involvement in their organization's venture into desktop virtualization.
- As one might expect from an in-the-trenches crowd, slightly more than half specify or evaluate products, and just under half specify features and technical requirements. Somewhat smaller but still significant numbers recommend products, determine need, and specify or evaluate vendors. Sixteen percent of survey respondents authorize or approve purchase of application and desktop management and virtualization solutions.

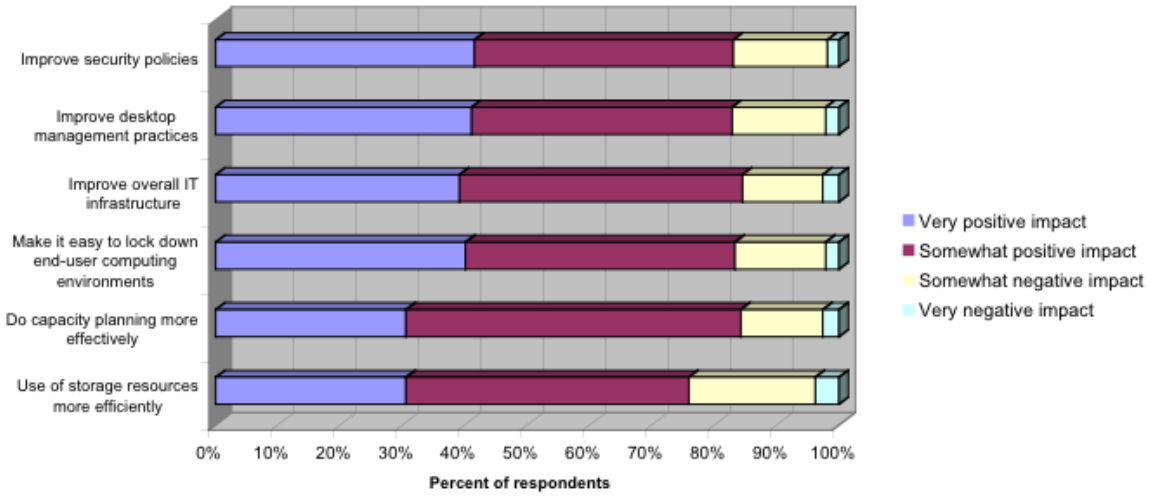
This research brief provides an analysis of the findings of this study on desktop virtualization adoption, with focus on the following areas: Security, management, costs, end-user devices, end-user experience, and IT infrastructure.

Key Findings: Security

Workstyle changes and the explosion in powerful end-user devices that can access corporate assets are now triggering concerns about the security of the IT infrastructure. More than 80% of those surveyed see the need to adapt their enterprise/network security infrastructure as a serious or very serious concern, and almost that many have serious or very serious concerns about data privacy issues and conflicts.

FIGURE 1: What impacts will desktop virtualization have on IT's ability to ...

419 RESPONDENTS



These concerns stand front and center in the Citrix & TechTarget survey.

When asked to indicate a variety of needs in their organization—needs that can be eased by implementing desktop virtualization solutions—more than 60% of respondents cite 'Reducing the risk of data breaches' and 'Achieving broader data security and compliance' as acute or very acute needs.

Concerns about security are evident, too, in what respondents want to see when it comes to functional capabilities of desktop virtualization. More than 80% of those surveyed say the 'Ability to lock down end-user computing environments' is an important or most important capability.

Given how essential security is to this survey's respondents, it makes sense that so many of them cite improved security policies as a very positive impact of desktop virtualization (see Figure 1 above).

Indeed, three of the four expected impacts at the top of Figure 1 — improve security policies, improve overall IT infrastructure, and make it easy to lock down end-user computing environments — all relate to boosting security.

Key Findings: Management

As IT departments adapt to new virtual workstyles, several management challenges have surfaced, all of which can be addressed by desktop virtualization solutions. At the top of the list, noted as serious or very serious by a majority of survey respondents, are

- 'Excessive desktop lifecycle management costs', and
- 'Lack of flexibility in desktop management'.

Only slightly smaller percentages of respondents give similar rankings to excessive desktop lifecycle management costs and lack of flexibility in desktop management.

Altogether, more than half of the survey respondents rank these problems as either very serious or somewhat serious. Even the problem drawing the least concern from respondents—incompatibility of co-resident applications—still gets ranked either very serious or somewhat serious by 41%.

When asked to rate the seriousness in their organizations of eight key problems related to or exacerbated by traditional non-virtualized desktop and application management environments, 60% of respondents cited 'Frequent patching or application updates for multiple PCs' as a serious or very serious problem.

What's more, a majority of respondents point to needs that reflect the limits of traditional desktop management capabilities—limits that are addressed by desktop virtualization:

- 'Providing workers with access to corporate applications from anywhere on any device'—seen as an acute or very acute need by 60%,
- 'Reducing the number of onsite PC support visits'—regarded as an acute or very acute need by 59% of respondents,
- 'Extending our PCs' refresh cycle'—ranked as an acute or very need by 56% of respondents.

Key Findings: Cost

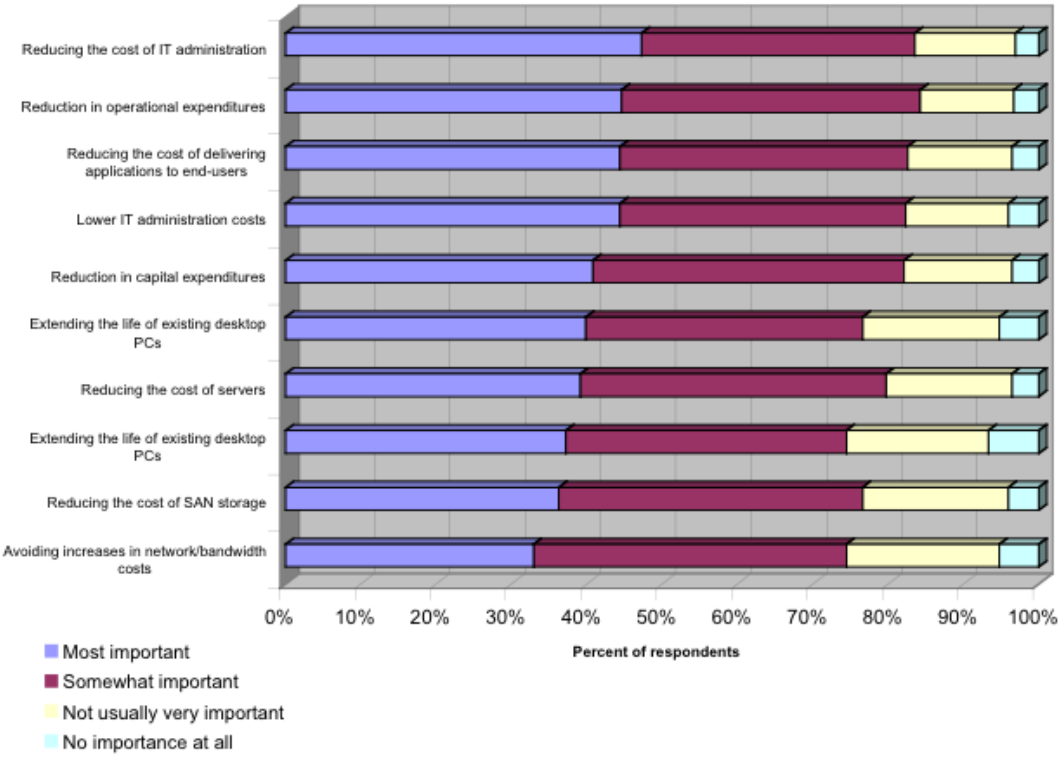
The list of potential savings from desktop virtualization (see Figure 2 below) constitutes both a ranking of respondents' IT painpoints and their expectations of desktop virtualization technologies, solutions, and vendors.

The first five expectations are regarded as somewhat or most important by more than 80% of the people responding to this survey. And the first three—reducing the cost of IT administration, reduction in operational expenditures, reducing the cost of delivering applications to end-user—are all about helping IT find a way to live within challenging budget limits.

Desktop virtualization has been embraced by many of the budget-starved IT departments surveyed here—plenty of whom have already implemented pilot programs and so have experience with what desktop virtualization can do in the real world. Thus their cost-savings expectations are not merely pie-in-the-sky. Instead, they're based on real-world experience, and they reveal the immense promise of desktop virtualization solutions.

FIGURE 2: When it comes to desktop virtualization, in what areas are you expecting to see cost savings?

419 RESPONDENTS



Key Findings: End-user Devices

Perhaps more than any other single factor, what drives interest in desktop virtualization is a transformation in how employees do their work—and the resulting use of both mobile and employee-owned devices in today's emerging virtual workstyle age.

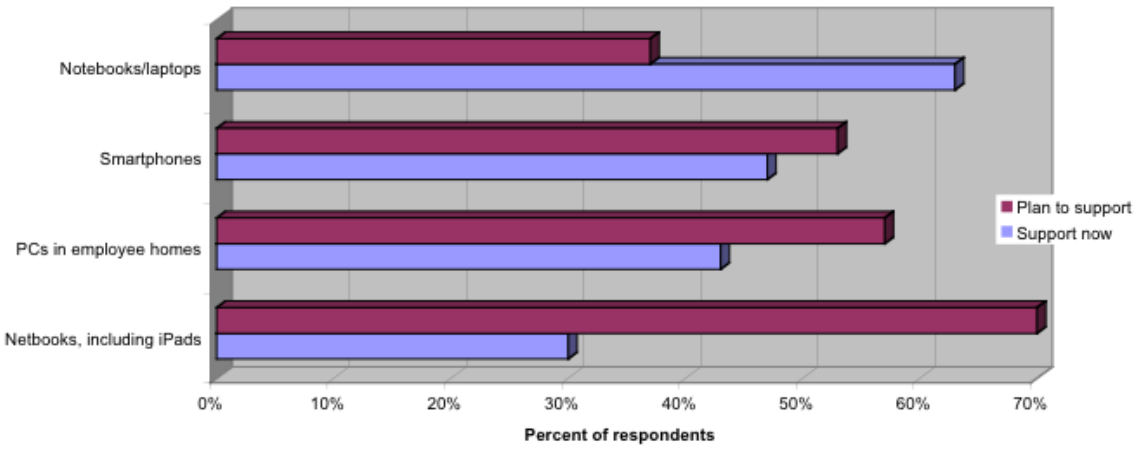
Among the survey's respondents, current support for end-user notebooks and laptops is nearly universal—it stands at 92%. Nearly two-thirds now support smartphone configuration/monitoring/management, 40% now support smartphone applications, and 36% currently support smartphone helpdesk capability.

Support for these and other end-user devices (such as netbooks, iPads, smartphone support integrated with other end-user device support) appears to be on its way to becoming universal, given the number of survey respondents who report their organizations are planning to provide such support.

Furthermore, organizations increasingly are supporting employee-owned devices, and here, too, support is on its way to uni-

FIGURE 3: Which employee-owned devices does your IT department support?

420 TOTAL RESPONDENTS, MULTIPLE RESPONSES



versality. Some 64% of survey respondents indicate their organizations support employee-owned notebooks/laptops, and 48% report organization support for employee-owned smartphones. Those who don't offer support now are planning to in the future.

When it comes to supporting employee-owned devices, respondents are most concerned about security, privacy, and compliance issues.

As mentioned, granting corporate access to so many non-company devices generates concern among survey respondents, which is why more than 80% express concern about adapting their enterprise/network security infrastructure and nearly as are concerned about data privacy issues and conflicts.

Other serious concerns expressed by a majority of respondents—such as the ability to use one solution to field different types of desktop virtualization, handling associated network/bandwidth demands (e.g., the I/O boot storm), coping with the necessary changes to application software—revolve around figuring out how to adapt existing IT infrastructure so it can support employees' virtual workstyles.

Key Findings: End-user Experience

Respondents to the Citrix & TechTarget survey are in strong agreement about what kinds of desktop virtualization solution capabilities matter most.

In addition to the importance of locking down end-user computing environments, more than four out of five survey respondents cite three other capabilities that enable IT to deliver a desktop environment

that results in a productive end-user experience (see Figure 4 below), saying these are somewhat important or most important:

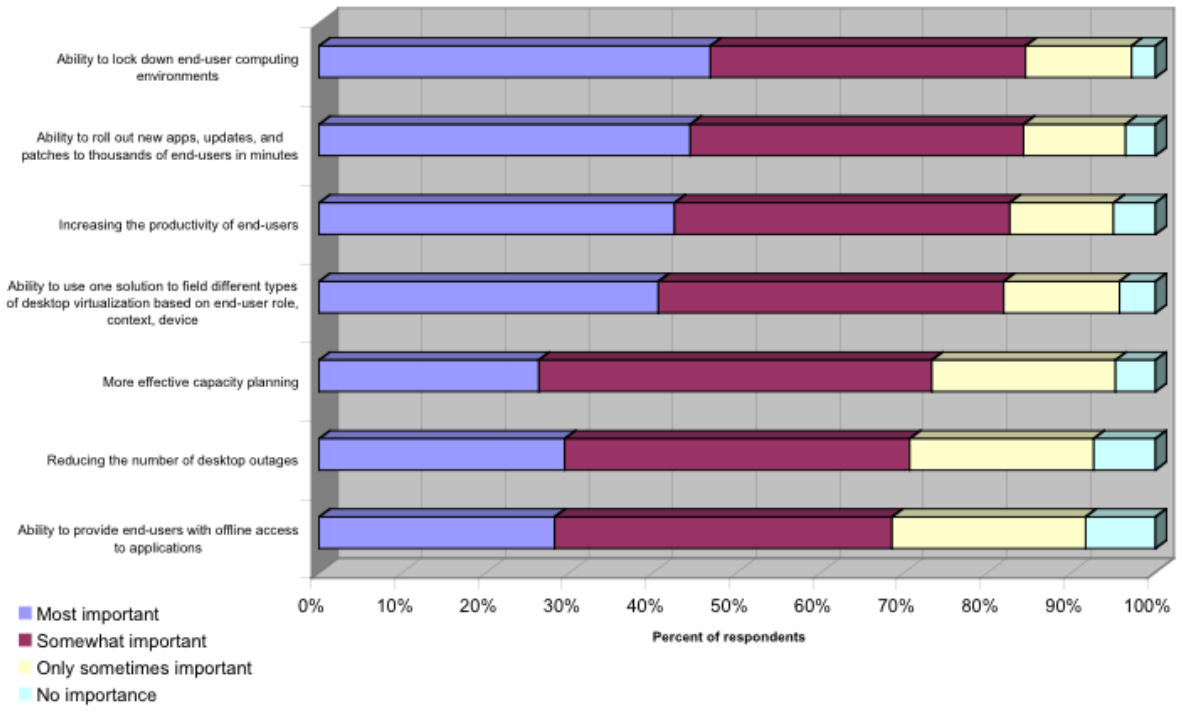
- Ability to roll out new apps, updates, and patches to thousands of end-users in minutes,
- Increasing the productivity of end-users, and
- Ability to use one solution to field different types of desktop virtualization based on end-user role, context, device.

And even the last three capabilities—more effective capacity planning, reducing the number of desktop outages, and the ability to provide end-users with offline access to applications—are regarded as either most important or somewhat important by two-thirds of those surveyed. Without these capabilities, the end-user desktop device experience would collapse into a nightmare of unacceptable latency, downtime, and lack of application functionality.

Since successful desktop virtualization depends in part on ensuring a positive,

FIGURE 4: When it comes to desktop virtualization, how important to your organization are the following functional capabilities?

419 RESPONDENTS



productive end-user experience, those surveyed were asked about which aspects of the user experience matter most to three categories of their end-users:

- Mobile workers (such as sales, executives, field operations),
- Task workers (such as call center reps, production floor workers, temporary employees, retail cashiers), and
- Office workers (such as human resources, developers, engineers, support staff, marketing designers, analysts).

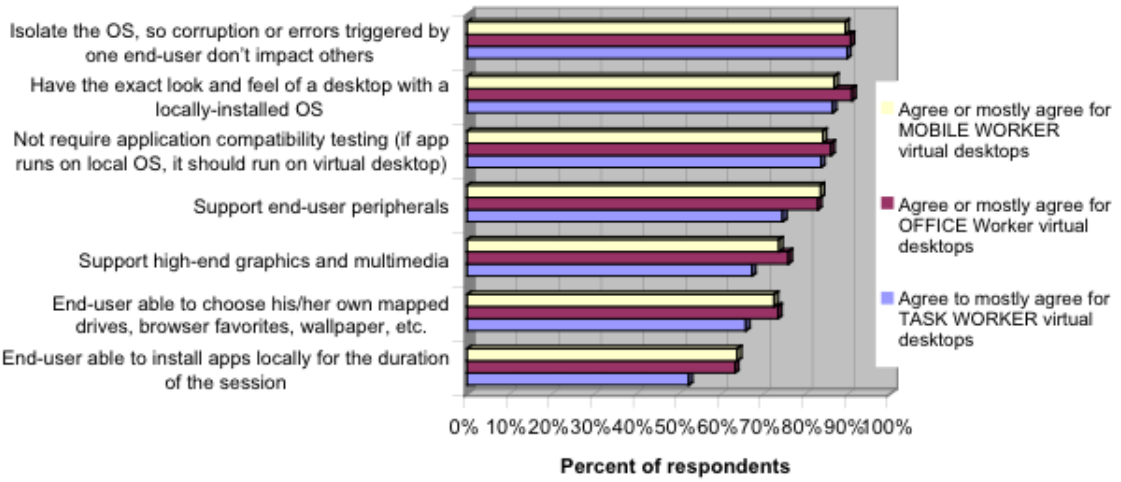
For all three categories, the aspect considered most important by respondents more often than any other is sufficient ease of use.

Survey respondents indicate that task workers and office workers have similar needs, although office worker needs are seen as more robust overall. For these two end-user groups, better than 80% of respondents say sufficient ease of use is either most important or somewhat important; only slightly fewer respondents similarly rank (in the following order) sufficient levels of application performance, familiarity with the desktop interface, and sufficient levels of data access.

Mobile workers' needs differ slightly from office and task workers'; respondents rank the ability to work offline close behind sufficient ease of use. A significantly greater number of respondents also regard reducing end-user need for helpdesk resources and an ability to store data on the client as more important for mobile workers than for task or office workers.

FIGURE 5: What should a virtual desktop be able to do?

NUMBER OF RESPONDENTS VARIES BETWEEN 397-408



Regardless of the type of end-user in question, an overwhelming number of respondents agree that a virtual desktop's operating system should be isolated so corruption or errors triggered by one end-user don't impact others. Likewise, better than 80% think that a virtual desktop should have the exact look and feel of a desktop with a locally-installed OS, and that a virtual desktop should not require application compatibility testing.

While fewest respondents agree that a virtual desktop's end-user should be able to install apps locally for the duration of the session, the numbers still add up to more than 50%.

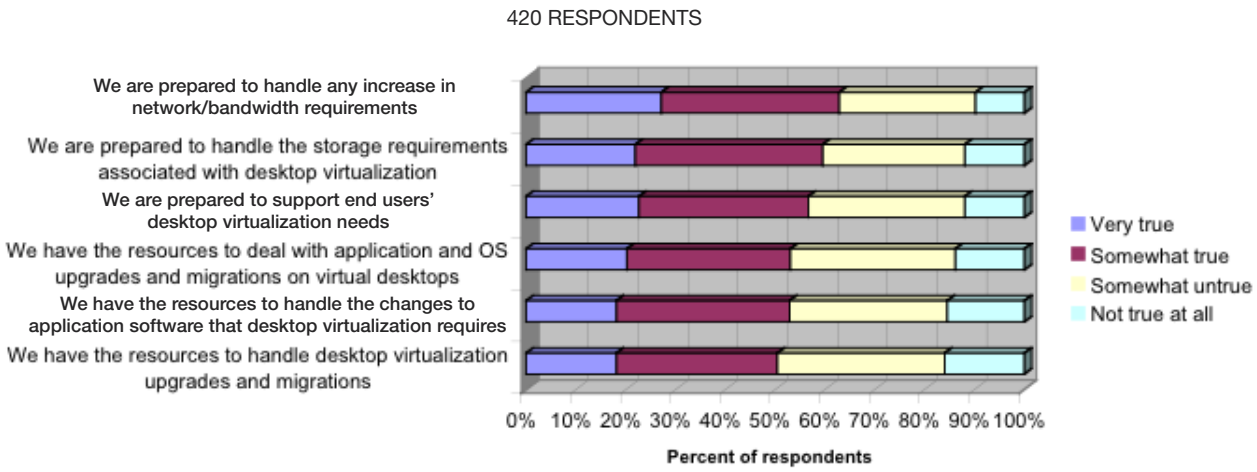
Perhaps this kind of nearly unanimous response to the personalization question—as well as a certain sameness in responses to queries about mobile worker vs. task worker vs. office worker user experience—is attributable to the sheer newness of desktop/endpoint virtualization. For these IT-oriented survey respondents, first some basic capabilities—e.g., an isolated OS, application universality, etc.—need to be in place before a more refined and granular perspective regarding end-users can evolve.

Key Findings: IT infrastructure

The need for desktop virtualization is apparent, but are IT departments ready?

Certainly not all IT departments are ready. Some admit to lacking the resources to handle desktop virtualization upgrades and migrations as well as the OS and application changes, upgrades, and migrations that desktop virtualization requires. Some cite inadequate IT skillsets and serious budget constraints.

FIGURE 6: What's the state of your IT infrastructure?



Still, most respondents indicate that their organizations' IT infrastructures are able to take on the infrastructure challenges generated by desktop virtualization, including an increase in network/bandwidth demand.

Although significant minorities face limitations in their IT infrastructures (see Figure 6 above), notably more respondents indicate that they are prepared to handle increases in network bandwidth, storage requirements, and end-user support requirements. And while resources lag some for application and OS upgrades, changes to application software, and desktop virtualization upgrades and migrations, they don't lag by much.

When it comes to network bandwidth requirements, a majority expect to be affected by desktop virtualization (see Figure 7 below)—and more than a quarter of respondents anticipate feeling that impact immediately upon implementation. Indeed, only 21% do not anticipate impact on network bandwidth needs.

Not surprisingly, most of the survey's respondents—the bulk of whom are in-the-trenches IT managers and staff—believe they're part of an IT department that's able to figure out where desktop virtualization is appropriate, identify solutions suitable for production deployment of desktop virtualization, and have familiarity with and expertise in virtualization technologies.

Still, a look at what survey respondents see as the major technical challenges to desktop virtualization

FIGURE 7: Do you expect your use of desktop virtualization, application virtualization, and/or private/public cloud computing to increase your network bandwidth requirements?

420 RESPONDENTS

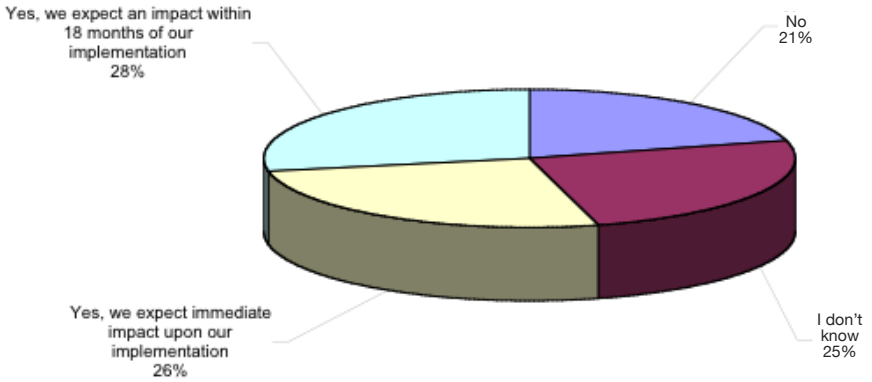
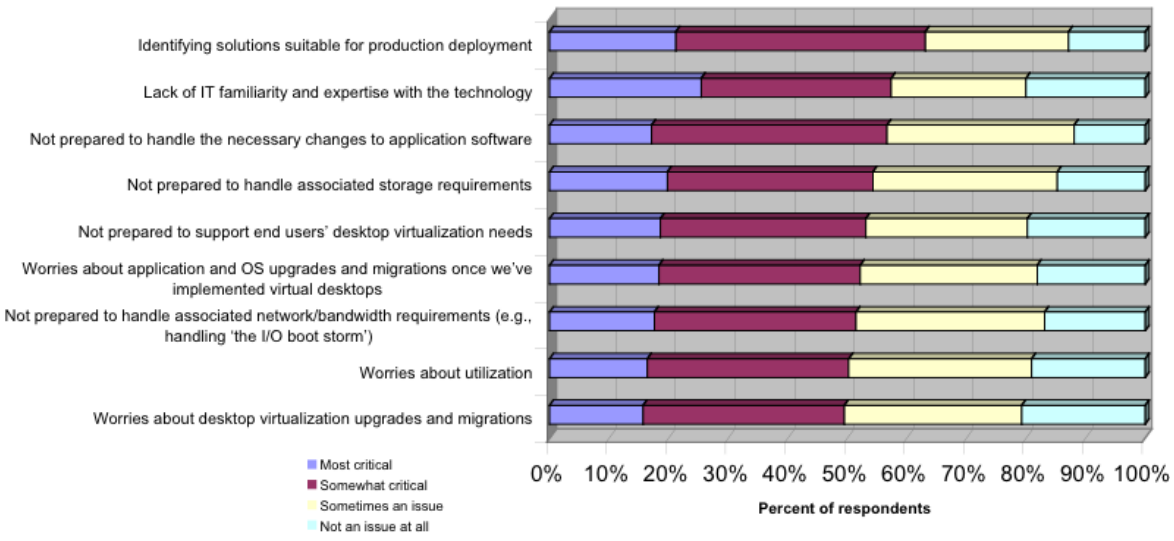


FIGURE 8: What do you regard as major technical challenges to your organization's adoption of deskop virtualization?

420 RESPONDENTS



(see Figure 8 above) underscores that many need to boost their desktop virtualization skillsets—or at least their perceptions of their desktop virtualization skillsets. It may be reasonable to assume that these perceptions play a far larger inhibitory role in implementing desktop virtualization than do the limitations of IT infrastructure.

Conclusion: Why now is the time for desktop virtualization

The pressure to support emerging virtual workstyles and an ever-growing number of end-user devices is exacerbating many IT departments' already desperate scramble to manage, maintain, and keep secure end-user desktop environments.

As a result, most of the people who responded to the 2010 Citrix & TechTarget Desktop Virtualization Survey are finding ways—despite crimped budgets and, for some, perceived limitations in their IT infrastructure and skillsets—to invest in desktop virtualization. Notably, two of the desktop virtualization challenges most often cited by survey respondents—concerns about security and the effects on productivity of possible negative end-user experiences—also are among the benefits they see desktop virtualization delivering, along with IT cost reductions and im-

provements in infrastructure and management practices.

The Citrix & TechTarget survey shows that IT decision-makers are realizing the struggle to contain desktop management costs can be won—with solutions that bring the efficiencies and productivity gains of virtualization to client endpoints. The survey also reveals that as these IT decision-makers commit to real-world desktop virtualization, they're using hosted shared desktops and applications far more often than any of several other desktop virtualization approaches.

Respondents to the Citrix & TechTarget survey are, arguably, desktop virtualization pioneers, those driven first by fast-changing workstyles to find new ways to remain efficient, productive, and competitive. However, the needs and problems they describe are nearly universal—which suggests the solutions they've chosen soon will be nearly universal, too.■