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Optimizing Desktop Performance, Security and Availability

A Guide to Application and Desktop Delivery

*A commissioned study conducted by Forrester Consulting on
behalf of Citrix Systems*

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Application Delivery Definition

"Application delivery" is the process of getting applications from the data center to the user as efficiently as possible. "Application delivery infrastructure" refers to the technology components that enable this efficiency across any network. A comprehensive application delivery infrastructure includes technologies that improve performance, availability, and security without compromising flexibility. Specifically, this includes components like application accelerators, desktop and application virtualization, application firewalls, secure remote access, WAN optimization, and performance monitoring.

Executive Summary

The desktop manager's role has changed dramatically over the last few years. Five years ago, most desktop managers focused on software deployment and patch management and measured their success with factors like meeting patch compliance objectives. Today is a different story. These skills are still required, but desktop managers are now held accountable for security metrics as well. In fact, Forrester has found that application availability, application and data security, and application performance now represent the top three desktop operations concerns.

The world around the desktop operations manager has also changed significantly. Trends like globalization, worker mobility, and a new generational mindset among younger workers raised on the Web, have dramatically increased the complexity of keeping corporate desktops productive. One option to address this is to use traditional client management tools to deploy and install software and operating systems directly to PCs over a network. However, new technologies and increasingly pervasive connectivity have made it possible to deliver desktop applications and desktop OS environments over the network as a dynamic, on-demand service, rather than installing them on a local machine and relying on an ongoing process of upgrades and updates to keep current.

To address these emerging requirements, we recommend a twofold approach:

- **Empower desktop operations to influence application strategies.** The goal is simple: allow any user to connect to any app with a great user experience and the right level of security. But most organizations don't think to include desktop teams in this strategy, despite the fact that desktop operations is the group that manages and secures the PC environment, including the applications and data. By including desktop managers early and often, an IT organization can more easily respond to lines of business, application owners, and user requirements.
- **Invest in an application delivery infrastructure.** Desktop managers today are faced with emerging requirements around data and system security, system performance, and overall costs associated with deploying a traditional PC environment. By investing in the application delivery infrastructure, desktop operations have a single policy-driven infrastructure that provides the necessary security, manageability, and supportability needed to address these concerns. Select vendors that incorporate technologies for delivering desktops and desktop apps over the network as an on-demand service to office workers.

From Reactive To Proactive: Why Desktop Operations Must Streamline Management

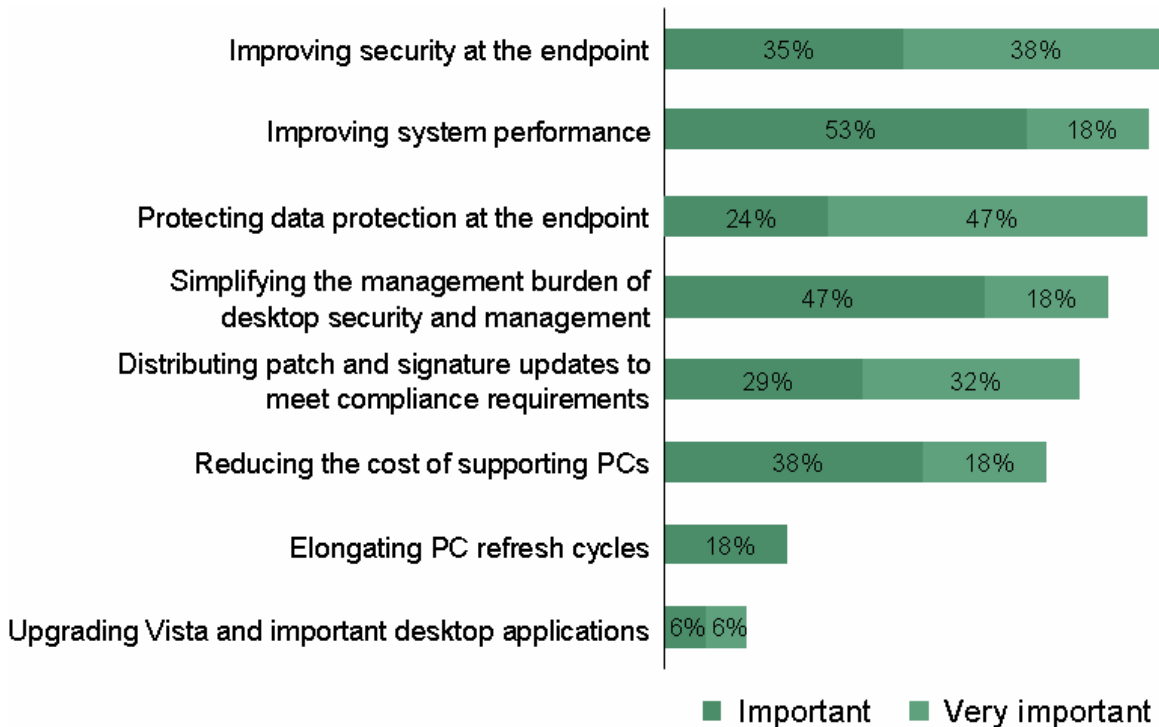
As part of a study commissioned by Citrix, Forrester Consulting recently surveyed IT decision-makers in charge of desktop operations and found that more than 20% of their time is spent on reactive tasks, such as troubleshooting and re-imaging PCs, and 42% of their time is spent supporting Windows and client/server applications. We also found that traditional desktop tasks — extending the life of PCs and completing application and operating system upgrades — are at the bottom of the priority list. Why? The PC environment has become too complex. Desktop managers are often overwhelmed just keeping up with the latest patches and antivirus signatures, not to mention the latest applications and operating systems. As a result, there is little time for them to strategize about extending the life of PCs when they struggle to simply support and secure them. From delivering applications to remote users to locking down the PC so it's less susceptible to attack, desktop managers have re-focused their attention on keeping machines in working order. Desktop operations must learn to streamline management tasks, or they risk getting stuck in an endless game of catch up in which they are no longer able to effectively meet the needs of users or the business.

Desktop Operations Decision-Makers Prioritize Security And Performance

The changing threat landscape is forcing desktop operations to get out of their siloed “PC lifecycle” mindset and instead focus on more comprehensive security and performance issues. This means that desktop managers are spending less of their time working on business-focused initiatives and are instead spending too much time on the everyday blocking and tackling. Today's desktop managers must find better ways to (see Figure 1):

- **Focus on the security of data and systems.** In today's environments, most security threats are sophisticated, focused attacks with business data as the primary target. Since endpoint machines are generally under-protected yet contain valuable information, they are increasingly the focus of these attacks. As a result, two of the top three concerns facing today's desktop operations staff are security related. More than 71% of desktop managers listed data security and system security as the first and second highest priorities for 2007.
- **Improve system performance.** As applications become more complex and malicious code, such as adware and spyware, continues to infect machines at alarming rates, PCs are reaching their breaking point. The desktop ops specialists surveyed in this study reported that 22% of their time is spent troubleshooting and re-imaging PCs due to slow performance, application conflicts, malicious code, and user-created errors. So it's no surprise that improving system performance is the No. 3 desktop operations priority with 71% of respondents responsible for desktop ops listing it as a 2007 priority.
- **Reduce the costs associated with PC management, security, and support.** Today's enterprises are struggling with “the management nightmare” — the act of administering too many point products. IT staffs are simply unable to efficiently manage all of the products, such as application deployment, patch management, and anti-malware tools that help with the day-to-day upkeep of the environment. This leads to a very high cost of supporting PCs as workers are left without access to their applications and without protection against malicious code. In fact, 65% and 56% of desktop managers cited simplifying the management burden of desktop security and reducing the cost of supporting PCs as important 2007 initiatives, respectively.

Figure 1: Security And Performance Top The 2007 Desktop Operations Priority List



Base: 34 desktop operations decision-makers

Source: A phone survey of 153 IT decision-makers and influencers across North America, Europe, and Asia-Pacific in March 2007 commissioned by Citrix and conducted by Forrester Consulting.

How Application And Desktop Delivery Helps Desktop Operations

Does this sound familiar? You just spent millions of dollars rolling out a new client/server application to all your desktop users, but it's a little sluggish. On top of that, about 20% of your PCs are infected with some type of spyware that is causing machines to take more than 10 minutes to boot up and shut down. We know security is an extremely top-of-mind issue, but it's not the only one. Additionally, some of your users are complaining that the apps IT gives them aren't enough, so they've started to download and install them directly, further complicating your performance, security, and compatibility problems. Also, the users who have upgraded to Windows Vista or Office 2007 at home are starting to ask when IT will be moving to the newer versions, which is something you know can't possibly happen without a massive project to upgrade PCs and perform complex app and hardware compatibility testing. How can you possibly keep up with growing user expectations and the increasingly complexity of the world around you?

There's an emerging technology solution that helps. Forrester refers to it as application delivery infrastructure. We define this as:

Technologies that streamline the connection of any user to any application by minimizing deployment burdens, reducing management costs, optimizing performance, and increasing security.

Application And Desktop Delivery Shifts The Emphasis From Deployment To Delivery

Most companies think about applications as things that are “deployed” and operating systems as things that are “installed”. However, we believe new models will emerge. The current model isn’t flexible enough to keep pace with the rate of change in today’s increasingly dynamic world. In the future, desktop operations leaders will stop deploying applications and installing operating systems, and instead put their focus on building a “delivery” infrastructure that can deliver apps and desktops dynamically over the network to end users as an on-demand service.

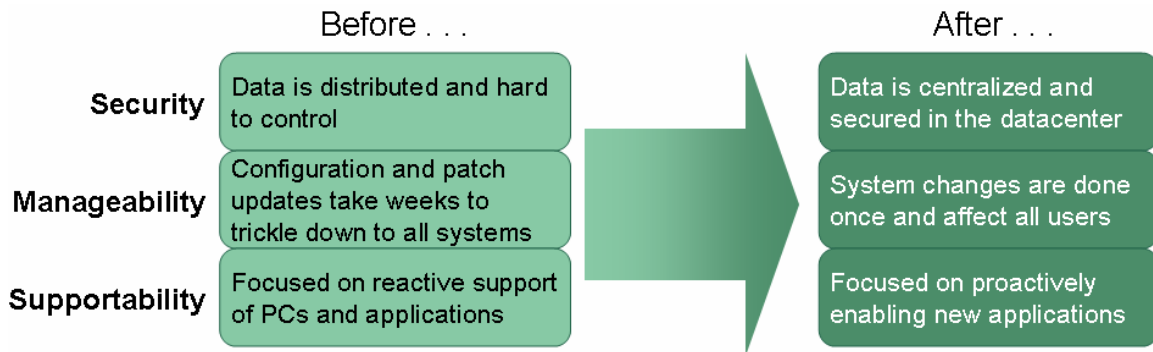
Application delivery *isn’t* about software deployment. Instead it’s a combination of solutions that bridge that gap between users — regardless of location — and their applications. It is the platform that provides the necessary abstraction layer to decouple the computing environment, applications, and data from the underlying PC infrastructure.

Application delivery infrastructure means desktop operations doesn’t need to focus on siloed management and security of individual PCs. It breaks the traditional cycle of incremental changes — Windows patches, application updates, and antivirus signatures — being pushed down to systems on a scheduled basis. Put simply, application delivery helps desktop managers shift the emphasis from task-based deployment to on-demand delivery.

From a desktop perspective, application delivery infrastructure provides (see Figure 2):

- **Security.** The changing threatscape means that desktop managers need to more tightly secure the PC environment: more specifically, the applications and data. Application delivery provides users with applications and PC environments that are located on a central server in the data center. And, because the data follows the applications, the data benefits from the tightly controlled conditions of the data center.
- **Manageability.** Traditional management and security tools have desktop managers running around reactively trying to clean up machines and deploy and update applications. Application delivery provides an infrastructure that simplifies the delivery and updating of the computing environment, regardless of underlying infrastructure.
- **Supportability.** Broken applications, malicious code, and corrupt operating systems leave the help desk employees with their hands full. To make matters worse, compatibility challenges — among desktop operating systems and apps — often drive desktop operations to lock down user configurations and slow the rate of new app and desktop adoption. Unfortunately, all of these efforts conflict with the growing expectation that users want to control and personalize. Application delivery addresses these challenges by providing a centralized, self-healing platform that adjusts on-demand to users’ needs.

Figure 2: Application Delivery Provides Better Security, Manageability, And Supportability



Source: A study commissioned by Citrix Systems and conducted by Forrester Consulting.

Application Delivery Infrastructure Addresses Emerging Desktop Operations Requirements

Focusing on application delivery infrastructure allows IT organizations to transform the PC from a traditional computer to an on-demand delivery system (see Figure 3). For a desktop manager, it means cost effectively:

- **Rethinking the way you secure your applications and data.** Today, applications and data are all secured in silos on a user's PC. Desktop managers deploy security software to protect applications, and they lock down ports to prevent data leakage. Application delivery provides the infrastructure to easily maintain applications while also keeping corporate data under lock and key in the data center.
- **Shifting the distributed management to a centralized model.** Before application delivery, desktop managers focused on the traditional PC lifecycle — deployment, management, and then retirement. This involved buying machines, deploying the corporate image and necessary applications, managing configurations, assuring patch compliance, and de-provisioning at end-of-life. Application delivery involves technologies that allow IT to install apps in a central store where they can be streamed on demand to end users or delivered via a virtual user interface. Application delivery also encompasses technologies that can stream or virtualize the desktop OS, providing users with on-demand PC environments that are easily configurable, updateable, and supportable. These centralized models give control back to desktop managers who can simply create, update, and remove entire computing environments in seconds — all while creating a more dynamic user environment.
- **Simplifying operating system and application upgrades.** System migrations have always been a challenge for desktop operations. Today's deployed hardware generally doesn't meet the needs of the new OS, and applications always seem to conflict with either the new OS or with each other. Application delivery provides isolation of applications, operating systems, and hardware. The result? Migrations are simplified, and desktop managers can individually upgrade components without worrying about the underlying PC infrastructure. This approach has the added benefit of giving end users more flexibility and control over their own environments as well. With application streaming, desktop managers get more control because they maintain a single, current repository of applications. Users, however, also get more flexibility because they have a self-service menu of available apps.

Figure 3: Application Delivery Addresses Emerging Desktop Operations Requirements

Emerging requirement	How application delivery helps
Securing corporate data is a top priority	Data is stored, and does not leave, the data center
Performance is becoming a highly measured metric	Uses centralized, high-powered servers to process resource-intensive apps
Desktop management and desktop security are becoming too cumbersome	Streamlines desktop images, keeping operational costs down
Patching and compliance requirements are escalating rapidly	Decreases time to achieve 100% system compliance
Global expansion into new markets is creating unreasonable time-to-delivery for new systems	Increases speed to deliver desktop OS and application to global users
Windows Vista and Office 2007 migrations are impending	Removes the dependency between applications, OS, and hardware

Source: A study commissioned by Citrix Systems and conducted by Forrester Consulting.

The Dos And Don'ts Of Application Delivery

It's important to make sure you have a consistent architectural approach so you can ensure end-to-end security, manageability, and supportability. We recommend that you:

- **Do include desktop operations early and often.** The desktop ops folks live and breathe the PC environment. They know where traditional computing models fail and what's needed to better secure and manage that environment. Also, unlike other IT operations groups, they are highly in-tune with end users' pains: slow system performance and broken applications. Bringing them into application delivery discussions will enable the organization to find a solution that meets both user and IT needs.
- **Do implement multiple desktop models . . .** Many companies have already started down the application delivery path. In fact, 33% of desktop managers are either rolling out or have already deployed thin-client solutions, and another 30% are implementing application virtualization. The key to success is uniting these deployments with the 65% of desktop managers that already use client management solutions. This combination of on-demand desktops and applications combined with the more traditional PC management tools delivers reduced cost and increased security.
- **. . . But don't just default to your standard management and security vendors.** The vendors you are using today to control your desktop environment have a very specific purpose: to manage and secure your systems. When looking to alternative PC models, look to vendors that have different core competencies — competencies that take desktop

operations out of reactive software deployment and system cleanup and into a proactive on-demand system delivery.

Conclusion

Today's desktop managers are being pulled in too many directions. First and foremost, 91% of desktop managers see themselves as tasked with ensuring that critical user applications are always available. However, they must do this while securing and managing all aspects of the computing environment. This seems impossible, especially when today's employees demand more control and personalization over their desktop environments. To do this, desktop operations need to adopt technologies like desktop virtualization, application virtualization, and application streaming, which are all tied together in a single, policy-driven application delivery platform. This application delivery infrastructure allows desktop managers to securely deliver both new and updated applications as well as full computing environments to any corporate and non-corporate user, without the traditional hassles of manageability and security. This results in not only reduced operational costs for IT but a flexible architecture for delivering applications, and their associated data, to any user on-demand.

Appendix

Research Methodology

In March 2007, Forrester Consulting conducted a phone survey of 153 IT decision-makers and influencers across North America, Europe, and Asia-Pacific as part of a study commissioned by Citrix Systems. In this survey:

- Fourteen percent of respondents were senior-most decision makers in the company, 27% were executives in IT, and 59% were managers or directors of IT that report into an executive in IT.
- Twenty-nine percent of respondents had authority over all of IT, 27% had authority over IT infrastructure and server operations, 22% had authority over desktop or client services operations, and 22% had authority over network architecture.
- One hundred and one respondents were from North America (US and Canada), 27 were from Europe (UK, Germany, and France), and 25 were from Asia-Pacific (China).
- Four percent of respondents were from enterprises that had 500 to 999 employees, 58% had 1,000 to 4,999 employees, 19% had 5,000 to 19,999 employees, and 19% had 20,000 employees or more.
- Thirty-six percent of respondents were from companies with revenues less than \$500 million, 11% were from companies with revenues of \$500 million to \$1 billion, 22% were from companies with revenues of \$1 billion to less than \$10 billion, and 11% were from companies with revenues greater than \$10 billion. Twenty percent of respondents did not disclose company revenues.
- Respondents represented a broad range of industries.