

White paper



Desktop Virtualization: A buyer's checklist

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Introduction

With server virtualization now well established in the world's datacenters, IT leaders are turning their attention to virtualizing and centralizing desktop PCs to address some of their toughest computing challenges:

- Managing complex end-user hardware and software infrastructure
- Securing networks and information assets
- Supporting a global workforce in an environment of constant change

Desktop virtualization corrects the division of labor and assets, so companies can put employees near customers and suppliers—but centralize IT and information assets to keep costs and risks under tight control.

Desktop virtualization should do more than just move desktop management to the datacenter—its real goal is to put productive applications in the hands of end users. Citrix Desktop Delivery dynamically assembles high-performance desktops complete with personalized applications and settings for every logon of every user, from a compact, efficient, central store of images. The next section outlines how it works.

Desktop Delivery

Citrix Desktop Delivery assembles virtual desktops on demand, following these steps:

- Separate the core OS from applications and user preferences to create base images appropriate for many or all users
- Use Desktop Provisioning to deliver the OS image on demand
- Apply user personalization to the OS image dynamically on delivery
- Deliver applications when needed and in the most appropriate way, independently of the core operating system
- Present the complete desktop to the end user on any device, over any network

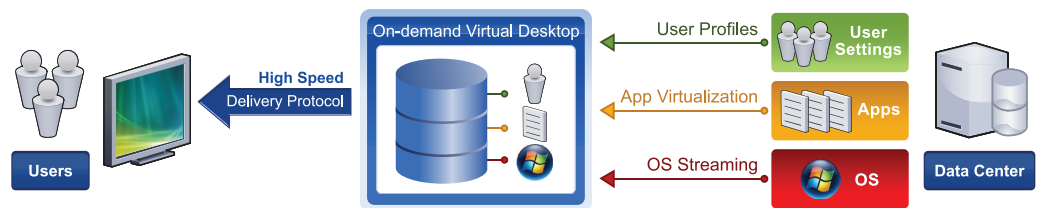


Figure 1. Citrix Desktop Delivery delivers desktop components separately on demand, for the optimal combination of flexibility and efficiency.

Citrix Desktop Delivery meets the technical and practical requirements of successful desktop virtualization, as outlined in a companion paper and summarized here:

The user experience must improve

Stand-alone PCs give end users fast CPU response, multi-media access, and broad peripheral support. Desktop virtualization must do the same, or users will see it as a step down. In key areas, a virtual desktop actually improves user experience:

- **Overall performance:** server-based desktops run on faster, more reliable hardware, for faster application performance and a more responsive desktop
- **Instant-on:** virtual desktops can start much faster than disk-based operating systems
- **Easy mobility:** virtual desktops deliver current desktops and data securely to any endpoint, so employees can travel light or work from home
- **Effective support:** technology-enhanced support tracks performance, and accelerates diagnosis and resolution of user issues

The solution must tolerate high network latency

Wide-Area Network latencies routinely exceed worst-case LAN limits. With user interfaces—display, mouse/keyboard, audio/video—extraordinarily sensitive to latency, a solution that performs well in the lab may be useless in an overseas office.

The Citrix “Independent Computing Architecture” (ICA®) protocol preserves client performance even in graphic-intensive applications even over networks with significant latency. A test of alternative solutions under real world latency conditions should be part of any evaluation.

Management must be effective, not just centralized

Some approaches to desktop virtualization clone desktops as monolithic images. This just moves the problem instead of solving it: storage and management burdens are as large as ever, but now fill up more expensive SAN storage and create more work for IT admins.

There’s a better way—the Citrix approach of separating Operating Systems, applications, and user preferences is simpler and less burdensome than monolithic approaches, and delivers a high-performance “custom” experience faster and cheaper.

The solution must scale and recover quickly

Desktop virtualization should be available to additional office-based knowledge workers—thousands at a time—at near-zero incremental cost. Dynamic assembly of OS, applications, and user preferences, backed by automated orchestration and deployment processes, are the keys to success.

Reliability and HA support are also essential components of any full-scale virtual desktop solution. Sessions must survive server failure, and fail over smoothly to healthy servers. Remote-access solutions must also be secure and scalable to support a large number of users who will often be located outside the corporate perimeter.

The solution must be flexible—for both users and IT

Users won't willingly give up a favorite application, USB peripheral, or platform to make life easier for IT. Virtual desktop solutions must easily accommodate diverse user requirements.

But IT needs flexibility too. With so many users relying on a desktop virtualization solution, vendor lock-in is a recipe for high costs in perpetuity. Be especially careful to avoid lock-ins that can limit your choice of:

Hypervisor – to avoid vendor lock-in and provide flexibility, a desktop virtualization solution should support all major hypervisors, including Citrix Xen®, Microsoft® Hyper-V™ and VMware® ESX™.

Desktop endpoints – avoid solutions that restrict endpoints. You're sure to have a Mac® or two at headquarters, and Linux-based machines in R&D or overseas. Choose a solution that supports every major user-side OS (Windows®, Linux®, Mac...) and hardware platform (PC, Thin Client).

Blade PCs – some applications and users require highly customized or dedicated PC hardware. Your solution should accommodate these users through the same infrastructure you use for standard client platforms, to avoid the management burden of one-off special cases crowding your datacenter.

The goal is that as markets develop and your needs evolve, infrastructure can be adapted without recourse to 'rip and replace' upgrades.

Your solution scorecard

Virtualization decisions are complex, and no single score will ever capture the complexity of your IT infrastructure and the business issues you balance every day. But this solution checklist can help you consider some of the critical challenges met and overcome by the most successful desktop virtualization initiatives.

	Citrix Desktop Delivery	Other
User experience	•	
Boot speed	•	
Instant-on: immediately presented with a functional desktop without long waits for boot-up	•	
Remote access support	•	
Integrated SSL VPN/Secure remote access	•	
Maintains session environment for reconnect	•	
USB peripheral support	•	
Drives: instant mapping to drive letters	•	
Printers: available without installing local driver	•	
Other peripherals and monitors	•	
Bandwidth: supports high speed streaming devices including video cameras, IP phones	•	
Display control: users set display resolution, window size, full/shared screen	•	
Multiple monitor support	•	
Desktop optimization and support	•	
Built-in desktop performance monitoring tools	•	
Built-in help desk support and services	•	
Network latency tolerance	•	
2D Graphic Object movement immediate and smooth	•	
Keyboard response immediate and continuous	•	
Windows Media® free from delay, stutter and pixelation	•	
Provisioning and management		
Storage efficiency: storage growth is a fraction of user growth	•	
Automated provisioning of desktop images—initial deployment	•	
Automated provisioning of desktop images—updates, patching and rollbacks	•	
Integrated tools: user profile management	•	
Integrated tools: administrator interface	•	

	Citrix Desktop Delivery	Other
Agility and availability	•	
Separate provisioning of OS and applications	•	
Application virtualization	•	
Application virtualization function included with product	•	
Server-side: applications run on remote servers for multi-channel delivery to virtual machines or blades	•	
Client-side: applications reside on remote servers but run locally on virtual machines or blades	•	
High Availability	•	
Server-side software components present no single point of failure	•	
Fully integrated HA and failover mechanisms	•	
Integrates with and delivers WAN optimization	•	
Flexibility	•	
Client Operating System Support:	•	
Windows® XP, Vista, XPE	•	
Mac®	•	
Linux®-Based Thin Clients	•	
Hypervisor support:	•	
VI3	•	
XenServer®	•	
Hyper-V™	•	
Server support: blade PCs hosted in the datacenter	•	

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