



# Tech Myths: Debunking the Toughest Data Center Misconceptions

## Myth #5 Desktop virtualization is just another server workload.



### Analyst Viewpoint:

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The increasing impact of tablets and smartphones, the Consumerization of IT, bring your own device (BYOD) initiatives, and the success of server virtualization, have all contributed to an increased interest in desktop virtualization. In fact, the influx of tablets at the executive levels of organizations (CFO, CEO, VP) has changed the conversation around desktop strategies, in many cases resulting in CIO-led initiatives including BYOD and rethinking the new “desktop.” Our FOCUS research shows that 30-40% of organizations have now implemented some form of desktop virtualization, with another 30-40% in various planning stages. Desktop virtualization was rated the next highest virtualization priority after expansion of server virtualization.

Desktop virtualization has matured greatly over the past few years, and in contrast to many early failed attempts at VDI a few years ago, desktop virtualization pilots and proof of concept (POCs) are succeeding today. Many of the initial barriers now have been overcome, including user experience, storage and associated high costs, personalization, mobility and offline requirements, and licensing issues. A positive user experience is absolutely critical for desktop virtualization success. With the wide range of user types in most organizations, this requires acceptable performance and response times while supporting rich graphics, multi-media, full-motion video and more recently communications and collaboration. Furthermore, the cost of the virtual desktop solution must be equal to or less than traditional desktops. In order to address all these issues and successfully implement desktop virtualization, it is critical to understand key differences between virtual desktops and virtual servers.

First, desktop workloads are unpredictable, varying widely across users, and even from one moment to the next for the same user. They are typically memory intensive, with multiple long running applications and many discrete images. The high amounts of memory affect the density or consolidation ratio, limiting the practical number of VMs per server, and increasing the cost per virtual desktop. In addition, there is generally congestion from synchronized user behavior, for example, users all booting up their desktop first thing in the morning, causing what is known as boot storms, or anti-virus software running simultaneously causing AV storms. These high IOPS operations create significant load on the storage and networking infrastructure, and must be addressed in order to scale beyond the pilot stage. Reducing the overhead and impact on the network, using tiered storage, with local direct attached storage, SSDs, and caching, and other storage and networking optimization needs to be evaluated specifically for the unique requirements of desktop workloads.

Changing from traditional physical desktops to hosted virtual desktops in the datacenter also has other impacts. From a network perspective, traditional desktops have no traffic while running local workloads. Hosted virtual desktops however, involve running the workload centrally in the datacenter, while remoting all the keyboard, mouse and video traffic over the network. This is all net new traffic, and when multiplied by large number of users, particularly with graphics and multimedia, puts a significant new load on the network. This must be considered as part of any desktop transformation project, including evaluations of the protocols and consideration of WAN optimization, and other techniques to minimize network traffic in support of user desktops and applications. Reducing overhead is important to improving density and minimizing related costs, and will be key to widespread adoption. This becomes even more important as desktops incorporate more communications and collaboration applications, such as two-way voice and video.

Furthermore, one size does not fit all. There is great diversity in the types of users and requirements for desktop delivery, and a broad continuum of available technologies. Success requires combinations of technologies, including VDI,

published applications, client hypervisors, application virtualization and streaming, layering, personalization, thin clients, zero clients, tablets and more. Success requires a flexible and dynamic infrastructure that can be easily adapted, optimized and managed to meet high demands and rapid changes.

Moving desktop workloads to the datacenter also has unique security implications. Desktops offer a popular attack surface and moving them to the datacenter requires different thinking. Desktops should be separated from any highly secure server workloads, and potentially some highly secure desktop users/groups should be separated from others.

From a management perspective, consider that organizations will generally be virtualizing exponentially more desktops than servers. In order to move from a successful but reasonably small pilot to thousands or tens of thousands of virtual desktops, management tasks and tools must be efficient and should include features like image management, storage and network management and optimization and QOS down to the level of the desktop (or group of desktops). Done badly, desktop virtualization recreates the problems of traditional desktops of the past, while increasing storage and network loads, increasing costs, and creating unhappy users. Done well, it is now resulting in successful desktop transformation.

**The bottom line:** End-to-end desktop and application delivery creates unique requirements for the virtualization, compute, network and storage infrastructure. Desktop transformation can be very successful today if careful attention is paid to critical areas:

1. **Desktop workloads are unique and unpredictable.** Leverage virtualization-aware platforms and infrastructure that address high memory needs, high and spiky I/O bandwidth requirements, and the need for a dynamic network infrastructure with end-to-end visibility and control.
2. **User experience and performance are key to success.** Design an end-to-end infrastructure that is optimized for graphics, video, and two-way communications, and can scale to support all your users in the long-term.
3. **One size does not fit all.** Assess and understand all your user requirements and consider which technologies best fit each of the different use cases. Design an agile infrastructure to meet the dynamic needs of all the different architectures and technologies.
4. **Moving desktops to the datacenter introduces new security issues.** Include your security team in the planning process and develop a virtualization-aware security strategy that properly isolates and protects both server and desktop workloads.
5. **Desktop costs go well beyond hardware acquisition costs.** The ongoing management costs far outweigh the original purchase. Consider the total cost of ownership (TCO), including both CapEx and OpEx.