

The cost of the Desktop in a VDI Environment: Does the TCO make sense?

Choices **PLEASE** Complexity Virtualization Desktop
Linux User Access **MAKE** TCO **\$OPEX\$** New Tools
Proprietary repurpose **THIS** *do more with same staff* VDI Good
Idea **Too much pain** **EASIER!**

Components of a VDI environment

Technology and user requirements are pointing in the direction that a centralized virtual desktop is a more efficient, less painful way to deliver applications to corporate end users. Amazon Web Services, Cloud providers and the internal Cloud (IT Infrastructure) all play a part in providing the landing spot for applications. Challenges abound, TCO is a major hurdle and good solutions are arriving. There are three key technologies to make centralized desktops work.

1. The Access Device- keyboards, mice, touch screens, networking and printing all require local computing. The laws of physics say that it would be nearly impossible to have all of that activity going round trip to your virtual machine. Some function must reside locally.
2. Application delivery- applications can be locally installed or in the cloud or in the data center on a virtual machine, or can be streamed to a PC or a virtual machine. Some applications should be run locally and others work very well in a virtual environment. Performance, security and manageability are often enhanced by centralizing applications.
3. Virtual desktops run the PC Operating System and its functions in the data center on a server. The hardware is shared and common, applications are easier to install and deploy, data is more secure, and it is easy to build and deploy PC's. Updating an application in the virtual world is just plain easy compared to updating physical desktops.

Connecting and User Experience

If all the heavy lifting (the OS, the applications and their management, the data, the security) is done in the data center, what is left? Answer: a protocol with which to connect the end user's device. Protocols include RDP (in use by System Administrators since 1996), ICA and all its derivatives, PCoIP, HTML via a browser, and a couple others. All of the above methods for connecting to a virtual machine or a terminal services session are aiming to provide a "user desktop experience" as good as sitting in front of a PC running the applications locally. This paper focuses on PC's or Thin Clients as the Desktop Access Device.

Benefits of a Thin Client as the Access Device

The thin client message is that companies won't have to "manage" their desktops any more. Additional benefits are: low power usage, no moving parts, low cost, easy to set up and manage, improved security related to "no local data" and "no local applications".

However, everyone knows there must be some sort of OS on the Thin Client to interact with a remote application and to run applications (ICA, RDP, View) and needed drivers (print, network, etc.) locally. Let's look at the good and not-so-good associated with Thin Clients on page 2.

The Short Version

Virtual Desktops seem to make sense

- Central management and updates
- Secure data
- Easy OS and application updates
- Common hardware
- Shared resources

But...

- So far shared disk is expensive
- Licensing costs are very high
- TCO models are not working
 - OPEX way too high
 - CAPEX higher than using PC
- User performance expectations not consistently being met
- Desktop administrators feel much of their knowledge is being wasted

Will using Thin Clients help?

- Yes, but...
- Only a subset of your users are going to effectively use thin clients
 - Choose carefully which users are a good fit for thin clients
 - Key spots are classrooms, call centers, public kiosks, task-based workers
- Thin clients require special skill set
 - Is your IT staff skilled with Linux?
 - New management tool and server infrastructure may be needed
 - In order to achieve performance, often thin clients must be more powerful, increasing the cost to the same as a PC
- Low cost alternatives:
 - Turn your PC into a Thin Client
 - Linux or other OS with PXE or dual boot
 - Group policies or scripts
 - ThinDesktop- a Windows application that runs on any 32 bit or 64 bit Microsoft OS

"Without ThinDesktop, the ROI for our desktop virtualization project just didn't make sense."

Infrastructure Architect, from a well-known University

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Is there a Perfect Windows Access Device?

Thin Client Choices

- **Repurposed PC**
 - **The good- very low cost to deploy, fall-back plan if virtual project fails, customized to needs**
 - **The bad- Lots of scripting, group policies, proprietary to company, internal support, Windows still needs to be managed**
- **Linux Boot PC**
 - **The good- low cost, get away from Microsoft on the desktop, which to some means no more security required at the desktop**
 - **The bad- VDA cost of about \$100/user/year, device drivers can be tough to find, new management tool and PXE server**
- **Windows Embedded Standard 7, XPE Thin Client**
 - **The good- all the device drivers and usb drivers can be included, existing virus protection and security can work, local applications can be installed**
 - **The bad- VDA cost of about \$100/user/year, higher end functionality creates the need for a more powerful unit, increasing the cost to that of a Personal Computer or laptop. Windows still needs to be managed**
- **Linux or Proprietary Thin Client**
 - **The good- low cost, typically small attack footprint with locked down or proprietary BIOS. Local custom applications**
 - **The bad- VDA cost of \$300 (list price) subscription (\$100 per device per year for 3 years). Device drivers can be tough to find, a management tool is usually required, and the OS needs to be managed/updated as protocol changes occur or custom applications are added. Proprietary means dependence on vendor for support and updates**

The ThinDesktop Alternative

(Could this be the perfect Windows Access Device?)

What ThinDesktop is:

- An application which runs on a Windows 32 bit or 64 bit OS
- The application starts and monitors any single executable
 - Most commonly the executable is:
 - ICA/ HDX
 - View/ PCoIP
 - RDP
 - Browser
- An application with a fall-back plan
 - Uninstall the application and immediately return PC to previous state

ThinDesktop Features:

- Use existing PC with no VDA cost if customer has Software Assurance
- Allows the end user no access to the underlying Operating System
- Allows the administrator complete access to drivers, services, OS
 - Use existing deployment tools
 - Use existing desktop management tools and knowledge
 - Use existing security and protection measures and applications
- A supported software application, not scripts or GPO's

The benefits ThinDesktop brings are:

- 90% decrease in CAPEX costs on the desktop device- use existing desktop
- No VDA costs for those on Microsoft Software Assurance
- Desktop administrators use all their skill set and can manage many more devices due to fewer help desk calls
- The application can be deployed locally on the PC, or centrally to the PC

Thin Desktop seems to make sense for Virtual Desktop users:

- Low cost and low risk
- Easy to deploy
- All the drivers and services are there
- Nothing new to learn
- In combination with Win TPC- an even more secure and protected solution
- The Microsoft OS still needs to be managed to the level required by corporate standards