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Practical IT Research that Drives Measurable Results

Benefits and Cost of Desktop Virtualization

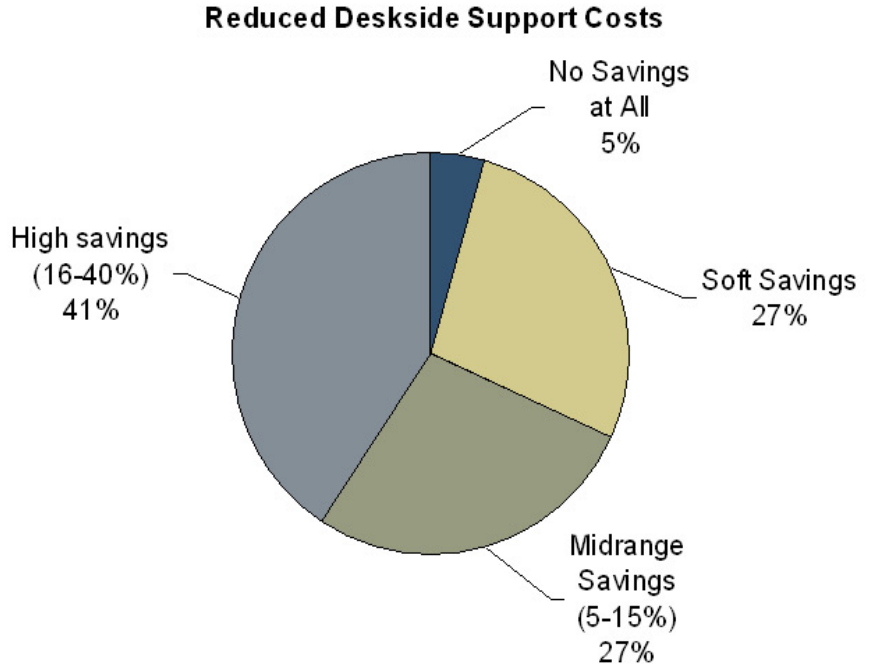
Executive Summary

- Desktop virtualization redefines how desktop computer services are delivered in the enterprise. Desktop virtualization offers the best of both worlds: centralization plus full desktops for more types of users.
- Minimize the budget drag of PC asset deployment, configuration, and maintenance. VDI can lower desk side support costs by up to 40%.
- Ensure the appropriateness of VDI based on these three main enablers:
 - An existing investment in server virtualization.
 - A need to invest in new PCs or an upcoming PC refresh.
 - A significant proportion of users who can be served by desktop virtualization solutions.
- While a majority of VDI implementations have been successful, challenges exist:
 - 17% reported higher than anticipated costs of deploying required infrastructure
 - Unforeseen costs related to licensing of Microsoft OS (cannot use existing licenses).
 - Paradigm shift as IT changes its focus from servicing assets to servicing people.
- VDI is an emerging technology and might see developments that mitigate current limitations. Watch for developments that address off line desktops, end-user experience, and infrastructure improvements.

Lower desk side support costs by up to 40%

Reducing desk side support can reduce total IT spending by 5%.

- Workstation management and desk side support takes up to 12% of IT expenses.
- Over 40% of implementers reduced desk side support costs by as much as 16-40%.



Traditional Desktop Model

Distributed PCs impose asset maintenance and support costs. Deployment and configuration of the hardware, as well as management of application and OS configurations and trouble shooting, typically happen at the desk side.

Virtual Desktop Model

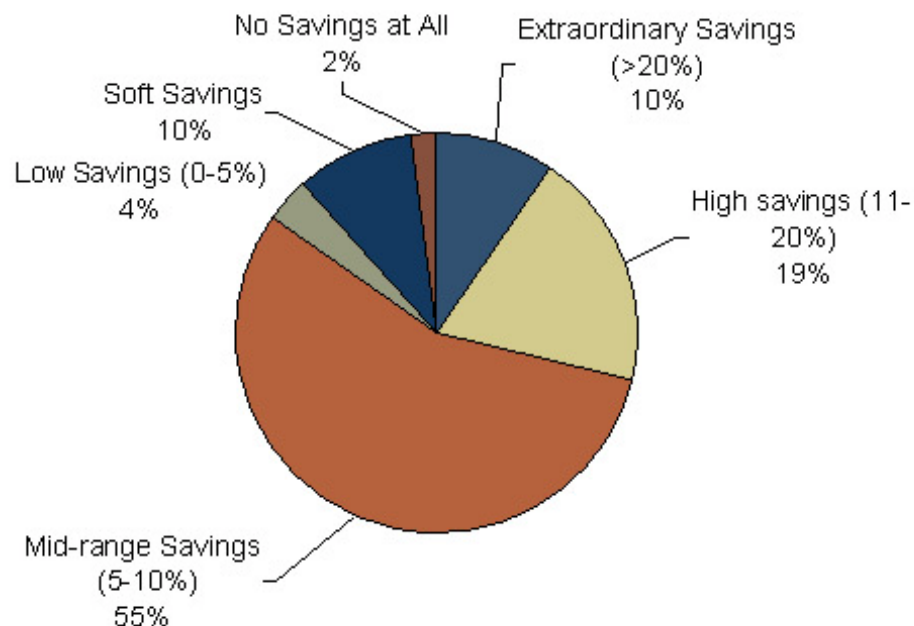
With desktop virtualization a new desktop – and new or upgraded application stacks – can be delivered to the end user without a need to individually deploy or configure new desktop hardware at the desk side.

Three quarters of implementers expect hardware savings of at least 5% or more.

Case Example:

A financial services firm that implemented VDI saved 25% on hardware acquisition by buying thin clients instead of high end desktops.

Total Hardware Acquisition Savings Over Cost of Refresh



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Focus on short term gains as long term gains are hard to demonstrate. Almost all implementers agreed that demonstrating hard dollar savings up front was essential to getting budget approval.

Other Benefits of VDI include: More stable OS, pushing updates out to users immediately and power savings.

4

What “blue screen of...?”

Virtualized desktops are more reliable (less likely to hang or crash) and if they are brought down, restart time is faster than a stand-alone PC.

5

Fast Updates

New desktops operating systems (such as a Windows upgrade) and new productivity apps can be delivered with zero downtime to end users. The central deployment means it is a win-win for IT as well as end-users.

6

Green Savings

Migrating to diskless thin client hardware to access virtual desktops has potential green savings particularly for larger implementations Note that reduced power consumption at the desk side will be mitigated by increased power in the datacenter for hosting servers.

Average Power Consumption		
Per client device (220 days/yr, 8 hrs/day)	Thin client Wyse S10v	PC Desktop
Power consumption	0.011	0.085
Annual KWHr	19.36	149.60
Cost (10 c/KWHr)	\$2	\$15

Virtualization is a good option for organizations with high support costs and who plan to refresh many devices.

Infrastructure Enablers

- Many desktops are currently up for refresh.
- A major refresh provides an opportunity to explore the potential of virtual desktops to delay refreshes or to replace with lower maintenance alternatives such as thin client.
- Support and configuration of PCs is a major cost issue. If the current cost to support and configure PCs is an issue, desktop virtualization is an appropriate means to help contain those costs.

“ We have 459 unique PCs out there whereas desktop virtualization would force us into a more standardized image, so that it wouldn't take 15 minutes to image that PC and a half a day to customize it. ”
Director of IT, Financial Industry

Info-Tech Insight

All the desktop virtualization vendors see enterprise Windows 7 rollouts as their golden opportunity for wider adoption of VDI. Windows 7 is seen as a trigger in 2010/2011 for overdue desktop refreshes. Delivering Windows 7 via VDI can mitigate upgrade costs.

The greatest potential payback for VDI comes from ongoing operational areas such as desk side support. Use this tool to calculate if it can work for you.

TCO Methodology

Rationale

- ▶ Use Info-Tech's VDI TCO tool to gain a deeper understanding of the costs involved in a virtual desktop implementation.

Assumptions

- ▶ Only variable needed to get an instant snapshot based on default assumptions is number of desktops being virtualized.
- ▶ While default assumptions are pre-entered, all variables can be adjusted to user environment.

Cautions

- ▶ The tool is not meant to provide definitive guidance on which VDI vendor to deploy.
- ▶ Assumptions are based on industry standards and will differ greatly on a case by case basis.
- ▶ Conservative estimates of vendors analyzed are not significantly different.

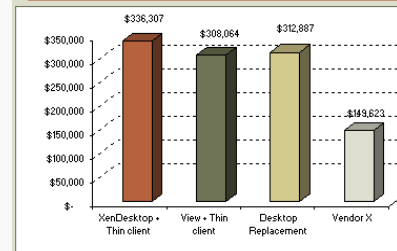
Screen Shot of Info-Tech's TCO Tool:

TCO of Virtual Desktop Deployment & Traditional Desktop Replacement

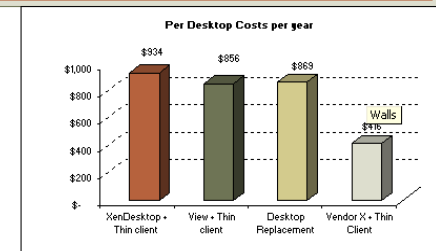
For a quick and dirty TCO of the 3 scenarios listed below, please enter the total number of desktops you plan to refresh or virtualize. Please only change white cells. For customizing the tool to your environment, please edit the **VDI** and **assumptions** tabs first.

Number of desktops being considered for implementation
 Projected growth Per year

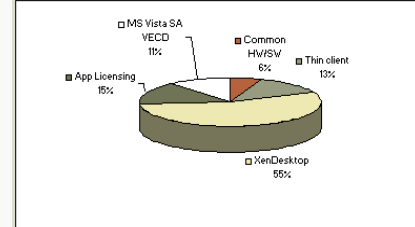
Relative TCO over 6 years



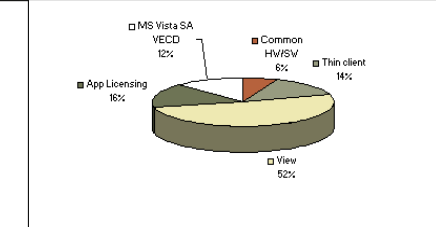
Relative Per Desktop Costs over 1 year



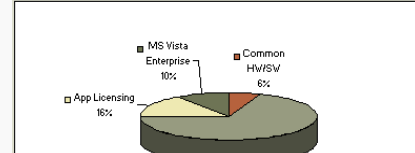
TCO - Citrix with thin client hardware (6 yr)



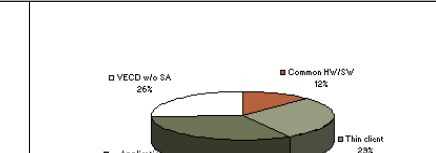
TCO - VMware with thin client hardware (6 yr)



TCO - Traditional Desktop Replacement (6 yr)



TCO - Vendor X (6 yr)



Cost and user characteristics main reason why some decide not to deploy virtual desktops.

- Of 200 IT decision makers surveyed by Info-Tech, approximately 17% had evaluated virtual desktop solutions but had decided not to implement.
- In interviews with IT decision makers, reasons given for not proceeding with a desktop virtualization implementation include:
 - **Total cost of solution per desktop was too high to justify deployment.** Cost areas include backend server and network and licensing.
 - **User needs were judged to be sufficiently met by existing remote client access technologies** such as Citrix presentation server.
 - **Too many users were unsuitable candidates for virtual desktop solutions** (due to mobility needs or local PC performance needs).

Remote Access Performance and Mobility

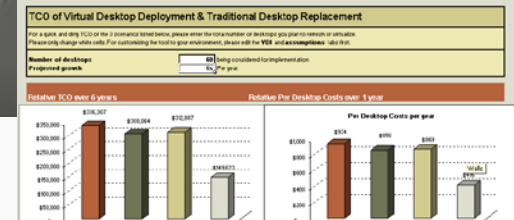
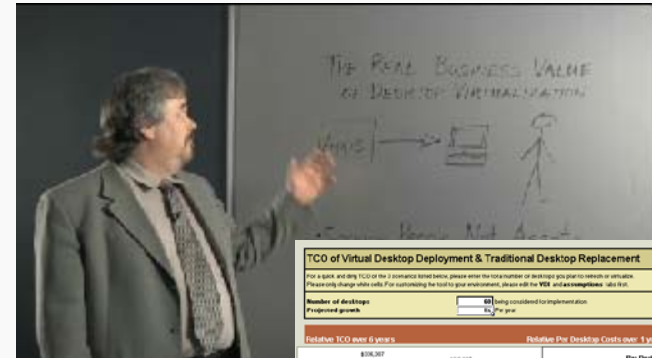
- Moving an application that has network latency issues from terminal services to desktop virtualization will not improve the experience of that application.
- Desktop virtualization solutions also typically require more storage and processing on the back end than traditional terminal services solutions.
- Desktop virtualization currently falls short of the ubiquitous desktop vision particularly in the area of mobility of the virtual machine image. In VDI models, VMs tend to be hosted on central servers and remote accessed from the desktop.

“There’s limited benefits for us to move to VDI because we already are gaining the advantages of application virtualization through Citrix Presentation Server, or Xen App as it’s called now.”

IT Director, Government

Further Resources:

1. The Real Business Value of Desktop Virtualization
2. Desktop Virtualization Appropriateness Assessment Tool
3. Virtual Desktop Infrastructure TCO per Desktop Tool
4. Microsoft Licensing Costs Pose Challenge to Desktop Virtualization Adoption



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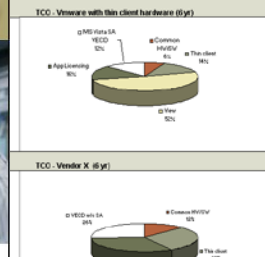
Microsoft Licensing Costs Pose Challenge to Desktop Virtualization Adoption

Last Revised: November 30, 2009

With desktop virtualization, IT departments can expect to significantly reduce time spent on desk-side issues. However, deployments are hindered by Microsoft's OS licensing fee structure. IT leaders must consider Microsoft's licensing structure before delving into desktop virtualization.

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Additional Tools and Insight Included in Complete Report

- Only 10% have adopted VDI to date, although interest is high - 2010 will see considerable growth in pilots and implementations.
- Virtualization is all about layers of abstraction - Understand VDI is just one combination of multiple layers of abstraction
- Deploying and managing personal computers is a pain for IT. VDI resolves the pain through centralization
- Desktop virtualization offers the best of both worlds: centralization plus full desktops for more types of users
- Good News: Majority of stakeholders happy with desktop virtualization implementation
- VDI works best for knowledge workers, process workers and data entry workers who don't have high graphics or mobility needs
- To effectively deploy desktop virtualization, strong infrastructure needs to be in place
- Desktop virtualization is inappropriate for users who need high-performance graphics processing
- Key cost challenges include licensing and back end infrastructure costs
- Operating System licensing for virtual desktops: MS licensing still an impediment
- In Summary: Consider motivators, infrastructure characteristics and user base to determine appropriateness

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