



# Comparing TCO: VDI 1.0 versus VDI 2.0

White Paper

In the last 4 years, the number of companies that view the implementation or expansion of desktop virtualization as a high priority has risen to 60%<sup>1</sup>. Given its reputation for greater flexibility and security compared to traditional methods of managing PCs, Virtual Desktop Infrastructure (VDI) has been the go-to solution for virtualization. To date, 26% of enterprises have implemented VDI<sup>2</sup>.

However, many companies are reluctant to invest in VDI, citing cost as the #1 barrier to adoption<sup>2</sup>. When taken at face value, this attitude is surprising given that when VDI was introduced in 2007 it promised to significantly reduce IT costs. In 2008, Gartner's total cost of ownership (TCO) analysis reported a projected savings of up to 52% over PC<sup>3</sup>.

However, by 2014 Gartner's analysis had changed markedly:

"Widescale HVD [Hosted Virtual Desktop] deployments have not occurred because of capital costs encountered by desktop administrators, which have been 20% to 40% more costly than purchasing traditional PCs. Desktop administrators often encounter technical, organizational and operational complexity issues with HVDs; these issues can often derail HVD deployment projects."<sup>4</sup>

What's behind the discrepancy between the cost projections and reality on the ground? Why is the actual TCO of VDI so much higher than expected? This white paper examines the key challenges faced by most companies when they're assessing TCO for VDI. It also explores how new VDI innovations can reduce TCO by 50% and speed deployment by 35 times, further reducing OpEx.

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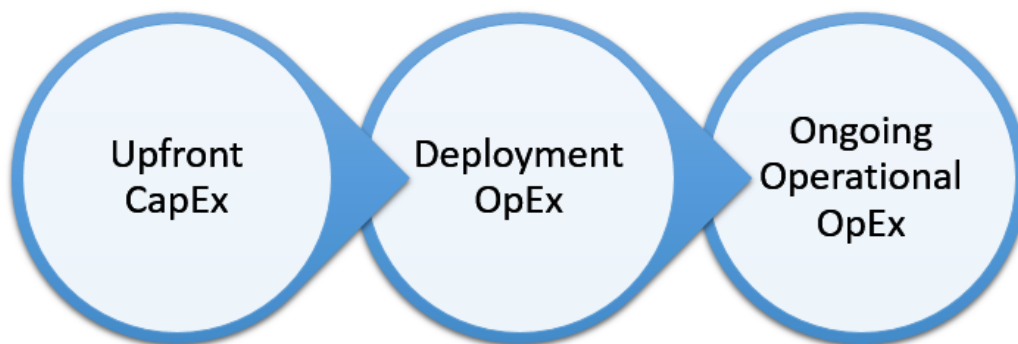
## There's more to TCO than CapEx of VDI licenses + hardware

For many companies, the ultimate TCO of VDI is higher than expected because of how it has been traditionally calculated. Many companies fall into the trap of only comparing and analyzing the upfront CapEx for VDI licenses and server hardware. This simplifies the TCO calculation, but underestimates, or even overlooks, many significant CapEx and OpEx costs.

The reality is that a VDI project consists of three phases: startup, resources and time to get desktop infrastructure to the first users, and finally operation. Aligning CapEx and OpEx to these phases more accurately depicts the cost of VDI and provides a view into what, when, and how much spend will happen.

## The 3 VDI Project Phases

A better way to calculate the total cost of a VDI project is to align the TCO calculator to the projects three major phases:



<sup>1</sup> Forrester Research: Enterprise And SMB Hardware Survey, North America And Europe (2011, 2012, 2013), Business Technographics Global Infrastructure Survey, 2014 and 2015

<sup>2</sup> Forrester Research: Business Technographics Global Infrastructure Survey, 2015

<sup>3</sup> Gartner Research: Total Cost of Ownership Comparison of PCs With Server-Based Computing, 2008

<sup>4</sup> Gartner Research: Is the Hosted Virtual Desktop Market Struggling to Grow, 2014

### 1. Upfront CapEx

Upfront CapEx pays for much more than VDI licenses and server host hardware. To start a VDI project and get to the first desktop requires numerous components to be purchased and installed. These components include:

- Load balancer & VPN Gateway
- Broker software
- Microsoft Windows Server and SQL databases
- Portal / enterprise storefront software
- Configuration / Monitoring software
- Image Management software
- VDI licenses
- Hypervisor host license
- Server & Storage Hardware
- Storage management software

### 2. Deployment OpEx

A typical VDI deployment takes about 6-9 months to go from nothing to initial deployment of the first 100 users. This phase is commonly left out of TCO and can be 20% of the total OpEx in the first 1-2 years of VDI. The typical process to roll out a VDI project includes: running a proof of concept, architecting and sizing the infrastructure for the optimal user mix, acquiring hardware and software, standing up an environment, and provisioning users. For most IT departments, this process means that numerous team members need to be involved, including senior specialists from the networking, server, hypervisor, desktop, and storage teams.

### 3. Ongoing Operating OpEx

As seen above, VDI's numerous components touch a broad set of IT departments: networking, server, storage, hypervisor, and desktop. A common mistake made by companies is to only account for the desktop administrator in the TCO, which grossly underestimates the ongoing operating OpEx by up to 60%. Operating VDI requires a team of specialists as every issue, patch, and change becomes a task for five different teams.

## Total Cost of Ownership for VDI 1.0 Solutions

Most enterprises only look at the upfront CapEx of VDI while they underestimate the OpEx. The table below more accurately represents how TCO should be calculated.

Vendor	Upfront CapEx	Deployment OpEx	Ongoing OpEx	3 Year TCO
Citrix	\$499K	\$409K	\$1.486M	Total: \$2.4M CapEx: \$499K OpEx: \$1.9M  Per user per month: \$67
VMware	\$609K	\$409K	\$1.486M	Total: \$2.5M CapEx: \$609K OpEx: \$1.9M  Per user per month: \$70
	Includes all components listed above. Assumes that server hosts are equal between VDI solutions.	9 months to deploy with 5 FTE (see item #2 above)	3 - 5 FTE for ongoing ops + 1 FTE Helpdesk	

Table 1: TCO for Citrix XenDesktop Enterprise and VMWare Horizon Enterprise VDI solutions for 1000 users

In this TCO calculation table, note:

- The upfront CapEx accounts for only 20-25% of the TCO and includes components required for VDI operations, such as Windows Server and SQL servers for Broker functionalities and load balancing.
- OpEx components of the TCO is 2-3 times the upfront CapEx.

By not including these CapEx and OpEx line items, simpler TCO calculators can underestimate the TCO for VDI by more than 50%.

## VDI 2.0 Reduces TCO by 50%

Workspot's VDI 2.0 solution leverages cloud and hyper-converged technologies to drastically simplify VDI. VDI 2.0 moves the complex operational components of VDI into the cloud. The load balancing, brokering, databases, portal, configuration, monitoring, and image management functionalities are now a cloud-centric service, requiring no deployment or ongoing maintenance resources.

The benefits are:

- Upfront CapEx is reduced by 95%.
- VDI 2.0 shifts cost to OpEx. VDI licenses are now OpEx.
- OpEx for the deployment and management of component operations is reduced by 70%.
- VDI can now be deployed in 1 week instead of 9 months or **35 times faster**.
- VDI 2.0 can achieve a TCO reduction of 50% compared to VDI 1.0.

The table below compares VDI 2.0 versus VDI 1.0.

Vendor	Upfront CapEx	Deployment OpEx	Ongoing OpEx	3 Year TCO
<b>Workspot VDI 2.0</b>	\$15K SSL VPN if needed	\$2.3K < 1 week to deploy requiring 1 FTE	\$1.17M 1 FTE Ops 1 FTE Helpdesk Workspot subscription	Total: \$1.18M CapEx: \$15K OpEx: \$1.17M  Per user per month: \$33
<b>Citrix</b>	\$499K	\$409K	\$1.486M	Total: \$2.4M CapEx: \$499K OpEx: \$1.9M  Per user per month: \$67
<b>VMware</b>	\$609K	\$409K	\$1.486M	Total: \$2.5M CapEx: \$609K OpEx: \$1.9M  Per user per month: \$70

Table 2: Comparing TCO for VDI 2.0 versus VDI 1.0 solutions for 1000 users

## The Bottom Line

Most companies interested in implementing or expanding VDI cite cost as the #1 barrier to adoption. However, new VDI 2.0 technology overcomes the major cost issues associated with traditional VDI solutions. Built for the cloud and hyper-convergence, VDI 2.0's simplified architecture results in drastically reduced CapEx and OpEx, achieving a TCO that is 50% less than VDI 1.0.

For more information about VDI 2.0, contact Workspot at [sales@workspot.com](mailto:sales@workspot.com).

## About Workspot

Workspot is the leading 100% cloud-based Workspace as a Service platform. Built for the mobile, cloud and hyper-converged infrastructure era, Workspot is the fastest and simplest solution for solving IT's end user BYOX and mobility challenges. Workspot also solves the corporate challenge of securely delivering apps, desktops and data to any device with a single frictionless user experience across mobile, Mac and PC platforms. Workspot's 100% cloud-based platform simplifies IT's workload, requires zero maintenance, scales instantly, provides deep end user experience analytics and monitoring, and is always up to date with the latest features. Based in Cupertino, California, Workspot is recognized by Gartner as "Cool Vendor" in endpoint computing. For more information, visit [www.workspot.com](http://www.workspot.com).

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