

Save Your Virtualisation and VDI Budget



Consolidate IT
Value Added 10 GbE Infrastructure Distributor



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Consolidate IT

VDI & Virtualisation are no longer just buzzwords. Businesses are looking for cost effective desktop and server deployments.

With this document we aim to give some background architectural information, to assist in making the right choices and save on costs.



STORAGE VIRTUALIZATION HELPS REIN IN STORAGE SPRAWL

<http://go.techtarget.com/r/10947586/7821865>

Christina Torode, News Director

Server virtualization has led to cost savings through server consolidation, and desktop virtualization promises efficiency gains in terms of desktop management, but storage virtualization is a missing link CIOs can use to maintain efficiencies and savings across the virtual infrastructure.

At its basic premise, storage virtualization allows you to pool storage for better capacity allocation and management.

"Data is now in a logical pool, so the IT staff only gives out the amount of storage that is needed, versus over allocating storage, which is what usually happens when storage isn't virtualized," said Mike Piltoff, senior vice president with IT service provider Champion Computer Solutions LLC, of Boca Raton, Fla.

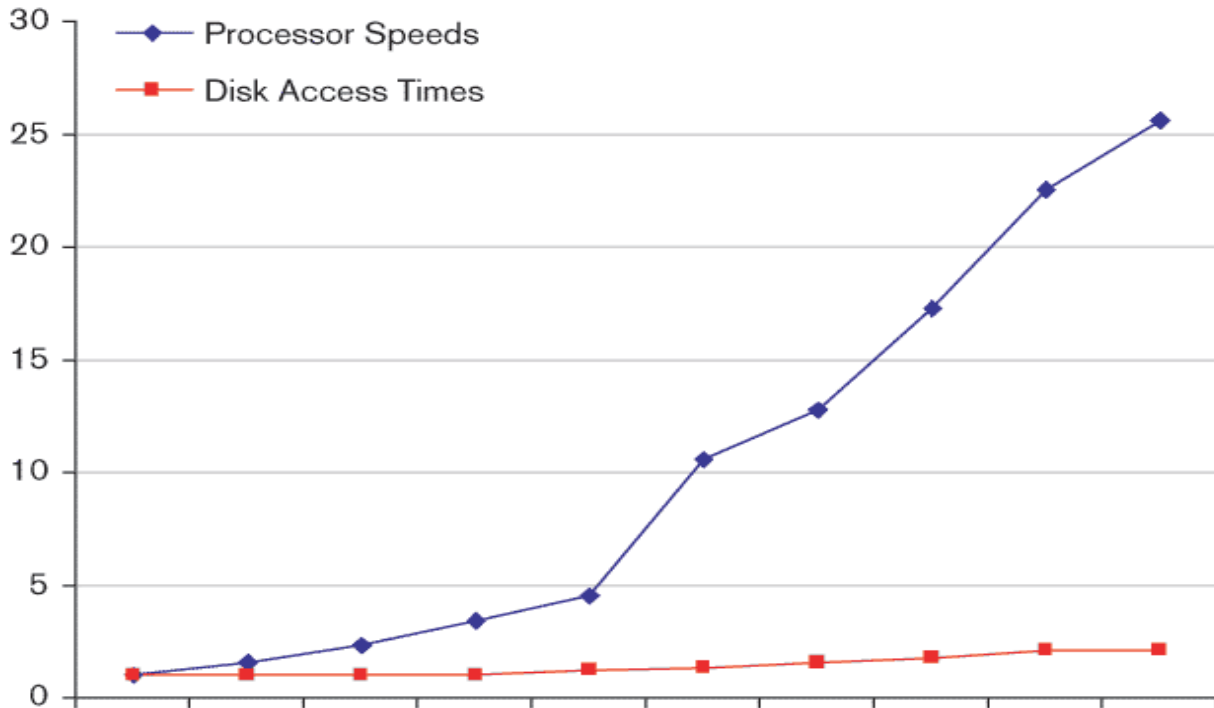
Virtualisation Roadblocks

Virtualisation of servers is replacing several physical servers by more powerful hardware. What if you can load 1000 virtual machines on a single Intel Nehalem 6 core? You solve one big problem, consolidating all the servers.

If each server had several 1Gb network connections, you need now a stronger server with at least the same network bandwidth, not to lose networking speed.

If each server had internal drives or was connected to a SAN, then each server has some IO power, after consolidation you need at least the same IO power then before the consolidation.

The gap between servers and storage is growing; 15K RPM disks limit the storage, with no change in performance in over seven years high performance servers are starved for data.



The mechanical limitations of traditional HDD storage leads to business-crippling data bottlenecks such as:

- eCommerce
- Reporting
- OLTP
- Server Virtualization
- Messaging
- Desktop Virtualization

The benefit of virtualization comes when all servers are virtualized; at this moment only a small percentage is virtualised due to the described limitations and costs.

VDI roadblocks

When the price point is right the desktops of the World will move towards VDI. Virtualisation started with servers and will continue with desktop virtualisation due to costs savings. If there are 500 million desktops in the World and there are 1 million virtualised, there remain a lot of desktops looking for an affordable technology.



We are all aware that the desktop is only the promised productivity tool when the administrative burden is limited to nearly zero. VDI is the answer. However, until now, the high costs block further deployment.

Desktop As A Service (DAAS) or Cloud activities are not affordable on a wide scale with the current technology.

The adoption of VDI is slowed due to CAPEX costs (server, storage)

Nearly every enterprise has experienced the effects of disk contention and latency resulting in a large deficiency in database and virtualization storage performance. CPU performance has exponentially outpaced hard disk drive IO and storage performance, becoming the datacenter's largest operational constraint.

The challenge with VDI is to support 100,000's of desktops. The challenge is to support up to 1 million desktops in a configuration, at the same time to be price effective and competitive.

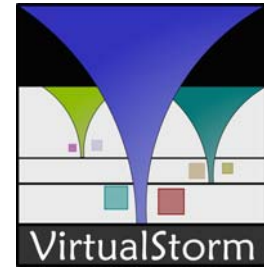
EXAMPLE:

- 1000 XP desktops @ 40 IOPs with 20GB = 3,750 Desktops based on 150,000 IOPS
WhipTail Racerunner 3TB unit
- 2000 XP desktops @ 20 IOPs with 15GB = 7,500 Desktops based on 150,000 IOPS
WhipTail Racerunner 3TB unit

Cooperation with VirtualStorm

VirtualStorm aims to solve density, storage size and IOPS issues for VDI, allowing up to ten times the densities on virtualization platforms.

The technology not only applies to Virtual Desktops, but also to Virtual Servers. With the growth in compute power and memory sizes for servers, the densities of VirtualStorm will go beyond a thousand virtual machines per physical server.



These extreme numbers also require extreme storage IO and sufficient bandwidth on interconnects. Large systems will provide that, however, new developments happen all the time. Since VirtualStorm is hardware agnostic, it can make use of the latest and greatest storage and connection technologies, such as WhipTail and Arista, allowing for high-speed desktops at a fraction of the cost.

How many desktops can your VDI infrastructure support?

If you have to deal with a lot of IOs and you can not have your users and customers waiting then you have two options: Buy a lot of expensive storage or use a better technology to support faster IOs.

Until recently the only technical solution for getting more IOs was buy more storage. Now affordable SSD technology offers an alternative, with reduced latency.

The table below compares both SSD and conventional HDD high performance storage for transactional applications, providing about 100,000 IOPS.

	WhipTail WT1500	RamSan RS-500-2T	NetApp FAS3170	EqualLogic 20 x PS3800XV
Rack space	2U	4U	108U (3 racks)	60U (2 racks)
Capacity	1.5TB	2TB	64TB	40TB
IOPS	125,000	100,000	121,031	90,544
Cost €	35,000	200,000	1,416,140	660,000
Cost/IO €	0.30	2	7.89	7.29
6 year support €	25,200	~36,000	~50,867	~51,709
Latency	0.1ms	0.25ms	23ms	10ms
Power usage	<300 W	300 W	18,082 W	12,000 W
Inline dedupe	Yes	No	No	No
CIFS/NFS	Yes	No	No	No

N.B. Figures are based upon vendor published or SPC benchmark results

It is obvious from the figures above that WhipTail SSD arrays are beneficial for VDI deployments giving 90% savings on power, cooling, costs and datacenter space.

Since VDI is IO hungry, our VDI deployment via classic spinning disks was going to be too expensive. With 100 concurrent VDI desktops, WhipTail delivered over 60,000 read IOs. WhipTail is the affordable SSD SAN for our RedHat VDI project.

Wietze Albers



rijksuniversiteit
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Virtualisation and the financial benefits for you

The conclusion is that for you to realise the projects that meet the financial and technical goals is to use technology that can bypass your bottlenecks.

More network power for your virtual & VDI projects

- Deploy 10 GbE, non-block low latency, that can scale your network load
- Use Intel NICs to upgrade your servers to 10 GbE
- Use powerful Intel Nehalem servers, less servers do more and save power
- Be able to scale and minimal costs

More IO power for your virtual & VDI projects

- Deploy storage that is using SSD in combination with inline deduplication
- Deploy storage via 10 GbE, with low latency
- Replicate your volumes to a DR location, for live migrations
- Be able to scale at minimal costs

Reduce the TCO, quicker ROI

- Reduce the cost of servers storage and licenses
- Reduce the costs of maintenance
- Rapid deployment, reduce the implementation costs
- Avoid the costs & complexity of Fibre Channel , FCoE, IB etc

Deliver more then was expected, keep your customers happy

- Deliver high speed services
- Deliver the services at a good price
- Be competitive by faster services at a lower price
- Be more flexible then others, react quicker to new opportunities

For more info or further details of the product comparison, please contact us: