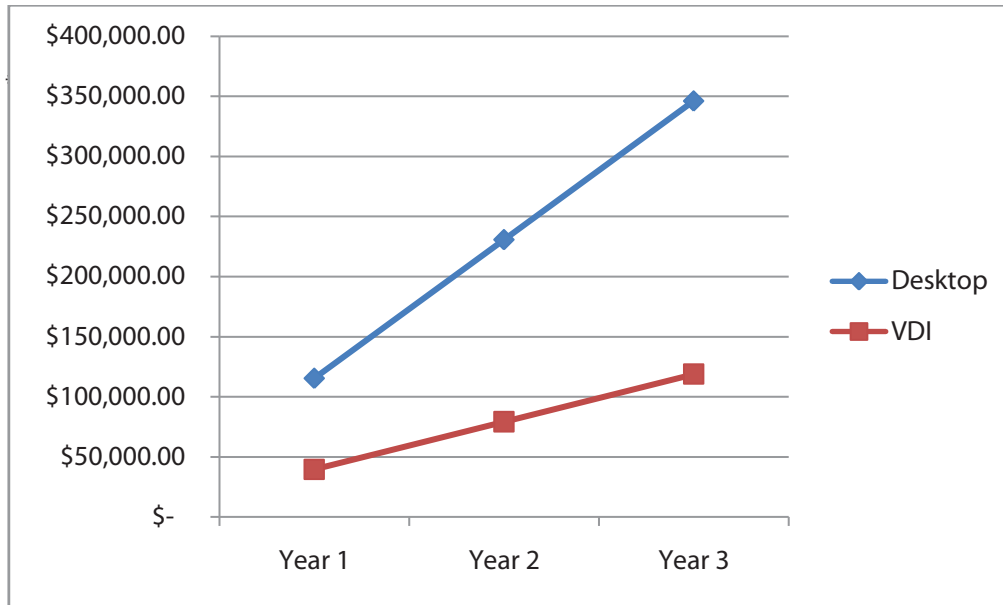




ADMINISTRATIVE COSTS

Hard costs (hardware purchase and software licenses) are just the starting expenses. Total Cost of Ownership (TCO) includes the administrative time and other maintenance and operation costs.

As the chart below illustrates (courtesy VMware), virtual desktops are close to 70% cheaper to maintain than physical workstations.



**HP Thin Client was used to represent thin client costs.

CONCLUSION

While the scenarios above were based on publicly available MSRPs, extra cost savings may be achieved by volume-license purchases. The net/net: Virtual Desktops give IT managers the cost savings, control and convenience they require.

INTERESTED IN PURCHASING VDI

The VDI solution illustrated here is:

1. HP Thin Client, MFG Part Number: FQ800AT#ABA
2. Windows Vista License
3. VMware Virtual Desktop Infrastructure, MFG Part Number: VDI-W-STR-C
4. Scale ICS Starter Cluster 3TB usable (6TB raw)

The Case for Virtual Desktops: Scale and VMware



KEY BENEFITS OF VIRTUALIZATION

- Recover quickly from disasters such as virus attacks, software bugs, and network outages
- Reduce management costs by up to 300%
- Save up to twice the cost of virtualization in power consumption savings alone
- Drastically reduce cooling and footprint needs

"When a virus hit, I was able to revert to my build's previous snapshot and redeploy to more than 200 thin clients in less than 30 minutes. That's the power of virtualization."
—CIO, Large School District.

Virtualization: COST, CONTROL and CONVENIENCE

When evaluating a virtualization strategy, it is important to think about Cost, Control and Convenience.

COST. Can maintenance and capital costs be reduced?

CONTROL. Does the strategy increase IT control over the services and content installed and run on company computers?

CONVENIENCE. Will virtualization make IT management more convenient and less time consuming?

Today, most enterprises rely on the client-services model to deliver and maintain software and services. In this model, each department has a core set of software that is installed on every employee's desktop.

This configuration presents several challenges.

1. **Virus meltdown.** If one system is infected, it can easily infect all other systems. Once infected, IT Managers have to clean each desktop and reset it to its previous state. Often, data is lost and the entire process may take hours, if not days depending on the number of clients infected.
2. **IT Management time.** Management time in this environment can cost up to 5x the initial system cost over a three-year period. These additional costs erode precious budgets.
3. **Application management.** Companies are at risk for what their employees do. Using the client-centric approach opens the possibility that employees will load unauthorized applications—and viruses—onto their systems.
4. **Increased backend costs.** Additional servers are required to maintain individual clients and the backup and replication needed.

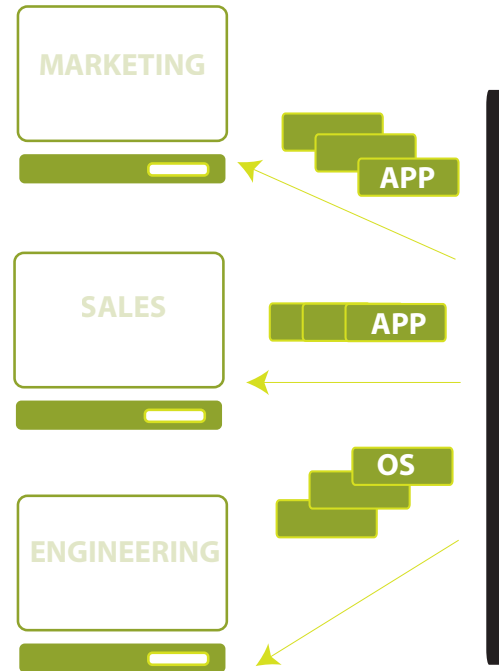
When evaluated against the Cost, Control and Convenience rubric, it becomes obvious that client-centric topologies add cost, reduce control and are highly inconvenient to manage.

It's because of those reasons that many companies are moving to virtualize their environments.



THE INSPIRATION BEHIND VIRTUALIZATION

The inspiration behind desktop virtualization comes from the service delivery industry. When delivering content services, cable and satellite networks queue content on servers—once. They then push it to set-top receiver boxes, which are similar in function to a thin client. Games, movies, television content and interactive applications are delivered without having expensive equipment on premise that has to be maintained on site.



virtualization

As the diagram illustrates, applications are moved to servers in the form of “builds” that can be unique to each department. Builds can then be deployed, updated, and managed remotely to hundreds or thousands of thin clients.

When evaluated against the Cost, Control and Convenience standard, virtual strategies are quite effective.

COST. Virtualization uses fewer servers, inexpensive thin clients and less power. Maintenance costs are reduced by nearly 300%. In other words, costs are greatly reduced with virtualization.

CONTROL. With virtualization, IT managers can prevent one application from impacting another when upgrades or changes are made by giving each application its own “virtual server.” With virtualization, the chance that inappropriate software will be downloaded and installed by employees is greatly reduced.

CONVENIENCE. Deploy multiple operating system technologies on a single hardware platform (Windows, Linux, etc.). By developing a standard virtual server “build” per department, applications can be easily deployed. When a virus hits, simply redeploy the build’s snapshot of the previous day. Within 30 minutes, hundreds of systems can be back up and running virus free.

VIRTUALIZATION SOLUTION: VMWARE VIEW AND SCALE COMPUTING’S ICS STARTER CLUSTERS

By far, one of the leading providers and innovators in virtualization is VMware and one of the best storage solutions to run it is Scale Computing’s ICS (Intelligent Clustered Storage) Starter Clusters.

VMware has just released a low-cost, feature-rich universal client solution called VMware View. While View gives end users a personalized picture of their desktop and applications, it allows IT managers to maintain tight centralized control and security.

VMware View also:

1. Requires fewer IOPS from the sever pool than other virtual solutions
2. Reduce storage needs by 70 percent over a client-centric deployment model
3. Integrates seamlessly with snapshot and replication features resident in storage solutions

Scale Computing’s ICS Starter Clusters include enterprise-class features at a price point so low, it makes virtualization much more cost effective than standard desktops. Each Starter Cluster includes:

1. Snapshot and Replication
2. 210 MB/sec of throughput
3. Easy-to-use Interface
4. Fine-grain, per TB scalability
5. No single point of failure

CASE STUDY: COST, CONTROL AND CONVENIENCE

To illustrate how Cost, Control and Convenience can effect your environment, we’ve crafted a real-world case study. COMPANY A needs to purchase 200 new computers. To virtualize all clients, they need VMware and Windows licenses, a thin client, and an enterprise-class storage system with enough throughput to handle 200 concurrent users. The following chart illustrates the difference in cost between deploying virtual desktops with Scale’s ICS 3TB usable Starter Cluster, deploying virtual desktops with Dell EqualLogic’s PS 6000 storage server and installing traditional enterprise-class desktops.*

*Note: For purposes of this illustration, the Dell OptiPlex MiniTower with WindowsXP, CD-ROM is used as the price benchmark for enterprise-class desktops.

Cost per User Detail (based on 200 users)

As the chart below illustrates, Scale is not only less expensive than other storage solutions for virtual desktops, it also makes virtual desktops a less costly alternative to installing traditional desktop clients.

	Scale Starter Cluster	Dell PS 6000	Dell OptiPlex Tower
Thin Client**	\$199	\$199	N/A
Windows License	189	189	INCLUDED
VMware License	132	132	N/A
3TB Usable Storage	57	150	N/A
TOTAL	\$577	\$670	\$593

