

Desktop Virtualization (VDI) Overview VMware Horizon View

Jim Rowland
Senior System Architect and Project Manager
Daly

Desktop Challenges

How do I maintain or improve desktop management when **I'm required to do more with less?**

with diverse end-user requirements **managing the variety of end point devices** has become an overwhelming and expensive task

Windows 7 / 8 is here,

I need to prepare for it!

I spend a lot of time on desktop support calls.

But I really need to focus on strategic IT initiatives that really add value.



Information and data is our most important asset. **We spend too much time recovering lost data** from stolen laptops.

It is difficult to respond quickly

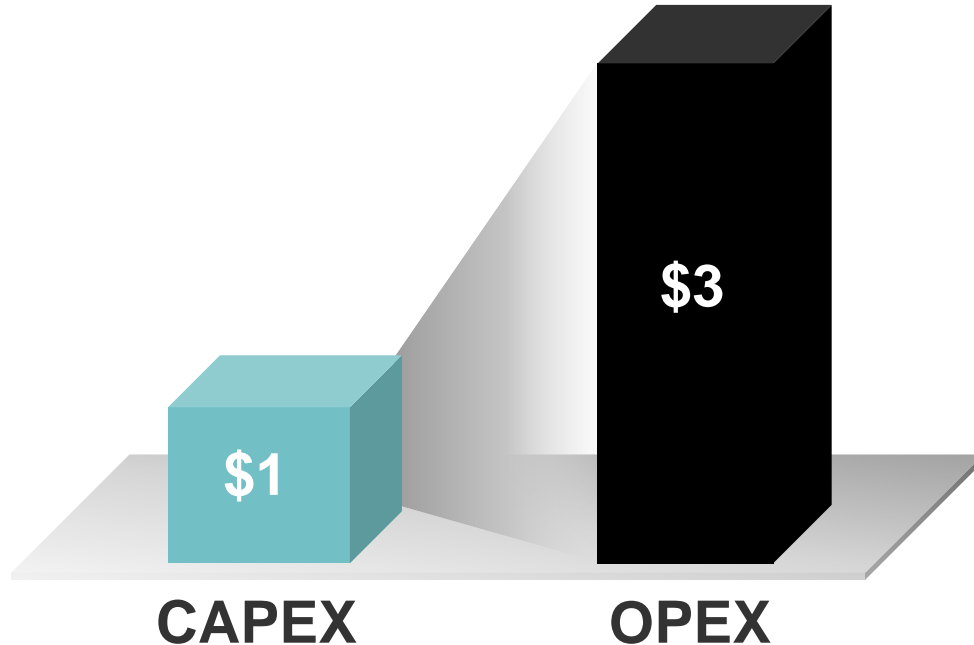
when employees are mobile and scattered across the world.

I feel like I'm **constantly patching and upgrading** applications and OS images

What about the cost of managing your desktops?

The Cost of Desktop Management Is Staggering

For every \$1 spent on hardware, companies spend \$3 to manage.



Source: IDC Study 2009



Are the needs of IT and end-users being met?

The Desktop Dilemma – Freedom or Control?

IT Requirements

- Manage OS images and applications easily
- Support the multitude of endpoint devices
- Provide secure, continuous access to desktops, apps
- Deliver highest level of service at lowest cost



End-user Requirements

- Personalized desktops
- Flexible access from a variety of locations and devices
- OS and Application support
- Access to rich content

How do you solve the desktop dilemma while providing the best solution at the lowest cost?

Importance of End-User Experience

■ Usability

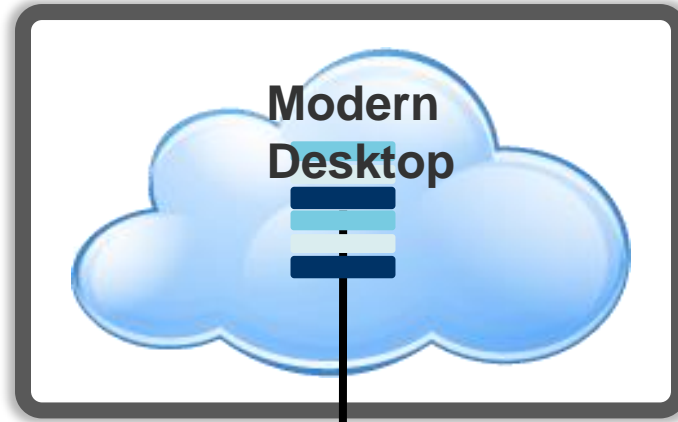
- Must not introduce additional burden to end users
- Must be easy to use
- Must deliver a rich end-user experience

■ Flexibility

- Must support a wide range of devices, applications and use cases



Modernizing the Desktop – A Managed Service Model



**Centralized
Management**

**Desktop
Delivery**



Efficiency of Operating System Management

- Streamline OS management
- Updated and patch without disrupting end-users
- Apply security policies centrally

OS Management

- Base image for groups of end-users
- Patch and upgrade centrally and independently
- Apply group or global policies
- Secure desktop and data

Endpoint Device Flexibility

Desktop PC/Laptop



**Windows, Mac OS
or Repurposed PCs**

Thin Client/Zero Client



**Broad Industry
Support**

Mobile Devices



**iPad/iPhone
Android**

Uncompromised Usability

**Flash Content
and Graphics**

**Progressive Build
of Graphics**

**Multimedia
Redirection**



**True
Multi-Monitor**

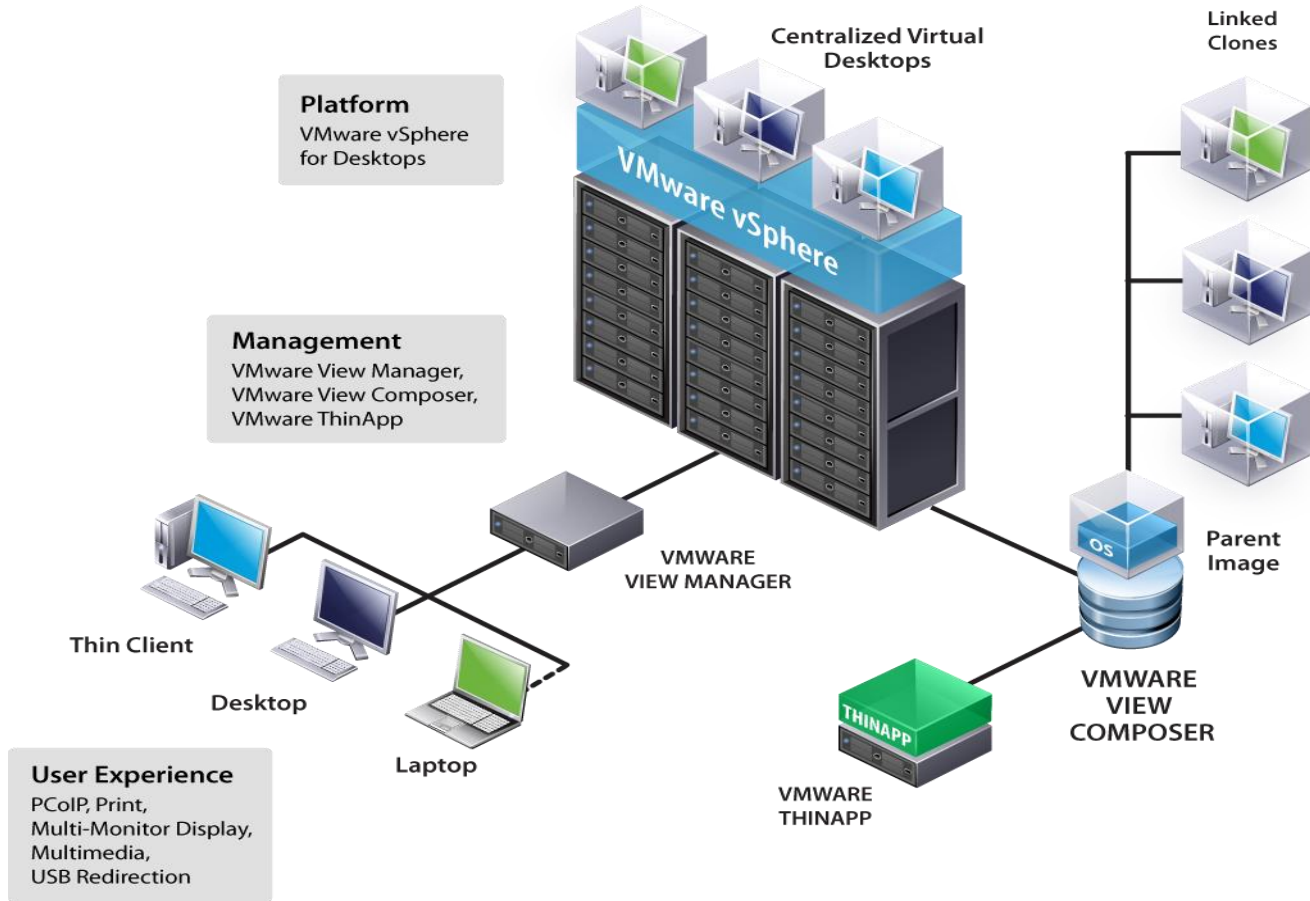
**USB
Redirection**

**Print
Optimizations**



Horizon View

VMware Horizon View Solution Overview



Horizon View Solution Components

- Connection Server(s) – Connection broker for clients to connect to and direct them to the appropriate virtual desktop.
- Composer Server – Creates the linked clone virtual desktops, and handles recompose sessions.
- View Security Server – Provides for remote access from company owned or employee / student owned devices over the WAN.

VMware Horizon View

- Recommended to have a dedicated vSphere cluster for View
- View licensing can include all licensing for vSphere and vCenter
- Linked Clones vs. fully provisioned
- ThinApp
- ThinPrint (location based printing)
- Persona Management option
- Stateless desktop option

Assessments and Performance Measurements

- Predeployment, pilot and/or after implementation
- VMware vCenter Operations
- Liquidware Labs

Horizon View Concepts

- Base image - snapshot
- Desktop
- Pool
- Entitlements
- ThinApps

Managing / Patching Virtual Desktops

- Best practice is to not include your Horizon View Windows machines in your SCCM or WSUS patching routine.
- Manually update your Base image(s), take a new snapshot, and tie the new snapshot to the pool.

Managing / Patching Virtual Desktops cont'd

- Perform a recompose session on the pool.
- The system will update desktops in the pool that are not in use, and will update the remaining ones once users log out.

Access Methods

- PCoIP from thin or zero client over LAN
- RDP from thin or zero client over LAN
- PCoIP from software client on pc over LAN
- RDP from software client on pc over LAN
- Via VMware Security Gateway over WAN
- Via web browser (HTML Access)

Thin Client Options

Thin Client (Endpoint) Solutions

- PCoIP Zero Clients
- Other Thin Clients – several Operating Systems to choose from – ThinPro, Windows Embedded.
- HP Smart Zero Clients
- All in One (AIO) Thin Clients
- Reuse older XP based desktops with the free View client to run Windows 7

HP t310 Tera 2 (2231) PCoIP Zero Client

- Uses the PCoIP protocol to connect to VMware View
- Four USB peripheral ports.
- DVI-I and DVI-2 ports.
- Completely driverless and stateless.
- Headphone and mic ports.



Lenovo VXL Vtona V200 Tera 2 (2231) PCoIP Zero Client

- Uses the PCoIP protocol to connect to VMware View.
- Four USB peripheral ports.
- Dual DVI-I ports.
- Completely driverless and stateless.
- Headphone and mic ports.



HP t410 AiO RFX/HDX/PCOIP

- Smart Zero Client - RFX/HDX/PCOIP
- All in One form factor (18.5" WLED display), with POE power.
- Four USB peripheral ports.
- Headphone and mic ports.



LG Tera2 V Series 19" and 23" AIO models

- Zero client – Tera2231.
- All in One form factor (19" or 23" LED display).
- Six USB peripheral ports.
- Headphone and mic ports.



HP T610 Flexible Thin Client

- Available with Windows Embedded, Smart Zero or ThinPro
- Six USB peripheral ports.
- DVI-I and DisplayPort
- Headphone and mic ports.
- Wireless option in some models.



mt40 Mobile Thin Client

- Windows Embedded.
- Portable laptop form factor (with battery).
- Optical drive.
- Wireless.
- Three USB peripheral ports.
- 1 DisplayPort
- Headphone and mic ports.



Thin Client Management

- Teradici Management Console – for all brands of Tera 1 (1100) and Tera 2 (2231) PCoIP units such as the HP t310 and LG AIO Tera 2 units.
- HP Device Manager – for all other HP thin clients.
- Other manufacturer Management Consoles for non Teradici and non HP thin clients.

Design Considerations

VDI Server Infrastructure Options

- Local server with local storage
- Cluster of 2+ servers with shared storage such as high performing SAN such as HP 3PAR
- Servers and storage deployed at multiple locations or centrally

VDI Storage Infrastructure - IOPS

- IOPS are very important, should leverage SSD drives for at least a portion of the storage

VDI Storage Infrastructure - IOPS

ROTATIONAL SPEED (RPM)	IOPS ESTIMATE
SSD*	6,000
15k	175
10k	125
7,200	75
5,400	50
*SSD included for comparison	

VDI Storage Infrastructure – IOPS cont'd

- Note that there are additional losses that must be accounted for in your IOPS calculation, such as RAID penalties, read / write percentages, etc.

VDI Storage Infrastructure – IOPS cont'd

USER CLASSIFICATION	SIMULTANEOUS APPLICATIONS IN USE	VIRTUAL MACHINE CONFIGURATION	IOPS REQUIREMENTS PER USER
Task User (Light)	Limited 1–5 apps light use	1vCPU 1GB RAM	3–7
Knowledge Worker (Medium)	Standard productivity 1–5 apps regular use	1vCPU 1GB RAM	8–16
Power User (Standard)	Compute intensive >5 apps regular use	1vCPU 2GB RAM	17–25
Power User (Heavy)	Compute intensive >5 apps intense use	2vCPU ≥3GB RAM	25+

Sample VDI Windows 7 VM Optimizations

- Vmxnet3 nic
- Run VMware Windows Optimization script

VMware Software Options

VMware Horizon View - New Packages

- Horizon View (formerly View)
- Horizon Mirage
- Horizon Workspace
- Horizon Suite – includes Horizon View, Horizon Mirage and Horizon Workspace

VMware Horizon Mirage

When Horizon Mirage is installed on a PC, it scans the entire device and categorizes all of the contents into a number of logical layers. Horizon Mirage isn't moving anything around on the PC—just categorizing so that IT can do more granular management of the PC going forward.

After the logical layers are determined, Horizon Mirage then sends a complete copy of that PC to the datacenter and keeps it synchronized. If an end user goes offline, Horizon Mirage will simply perform a synchronization the next time that user comes back online. That synchronization will include updates IT has made to the IT-managed layers, and also updates that the end user has made to their data, profile, or user-installed applications.

VMware Horizon Mirage cont'd

Horizon Mirage runs everything locally on the end user's PC so they are able to leverage native PC performance, persistent personalization, and user-installed applications regardless of whether they are online or offline.

Horizon Mirage addresses a number of key IT business initiatives, including the following:

- Streamline Windows 7 Migrations**
- Simplified Desktop Backup and Recovery**
- Easily Manage Remote and Branch Office PCs without additional infrastructure**

VMware Horizon Workspace

- **Deliver Policy-Driven Data and Applications to any Device, Securely**
- **Apply user-based policies to data and applications**
A centralized management console enables you to deploy applications and data seamlessly so that you can focus your time and resources on other strategic projects that drive business growth.
- **Simplify the end-user experience while reducing management costs**
Confidently and securely maintain control over corporate data by providing the ability to set and manage policies to govern end users' workspace access and usage.
- **Empower your mobile workforce with the enterprise services they need**
Support BYOD (Bring Your Own Device) initiatives and give your end users the freedom they need to be more productive by letting them access corporate applications and files anywhere and on any device.

Useful Links

- VMware Horizon View Product page
- <http://www.vmware.com/products/view/overview.html>
- Teradici PCoIP Management Console
- <http://www.teradici.com/pcoip-solutions/management-console/overview.php>

Useful Links cont'd

- VMware Horizon View 5.2 Architecture Planning Guide
- <https://pubs.vmware.com/view-52/topic/com.vmware.ICbase/PDF/horizon-view-52-architecture-planning.pdf>
- Storage Considerations for VMware Horizon View 5.2
http://www.vmware.com/files/pdf/view_storage_considerations.pdf

Useful Links cont'd

- VMware ThinPrint Guide
- <http://www.vmware.com/files/pdf/VMware-View-ThinPrintGPOConfig-IG-EN.pdf>
- VMware Horizon Suite Evaluator's Guide
- <http://www.vmware.com/files/pdf/view/VMware-View-Evaluators-Guide.pdf>

Useful Links cont'd

- VMware Horizon Mirage FAQ
- <https://www.vmware.com/files/pdf/mirage/VMware-Horizon-Mirage-FAQ.pdf>

Conclusion

- Multiple types of desktop virtualization
- Planning, design and infrastructure
- Properly sized storage is important
- Need an Antivirus solution specifically designed for virtualization
- Try a pilot – there is an implementation that is right for your environment