



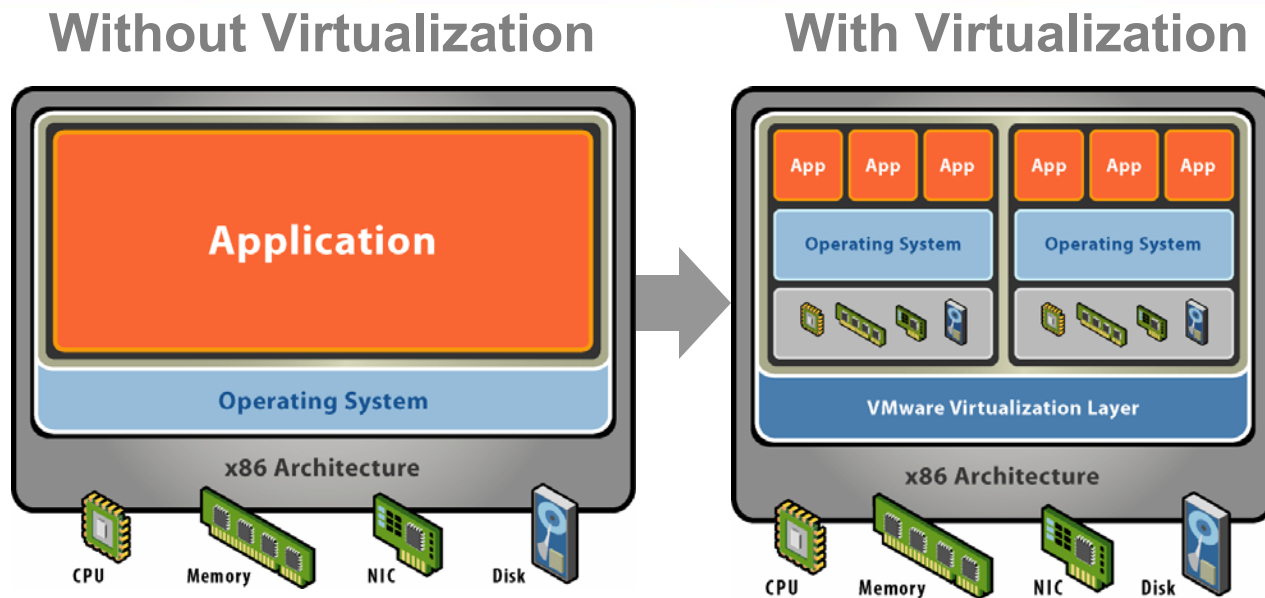
Leveraging Virtual Desktops to Improve Healthcare

April 22, 2008

Agenda

- An overview of desktop virtualization technologies
- Information on how server virtualization can be leveraged for desktop virtualization
- How desktop virtualization implementations can benefit healthcare facilities
- Best practices for healthcare organizations to follow when selecting and adopting desktop virtualization technology

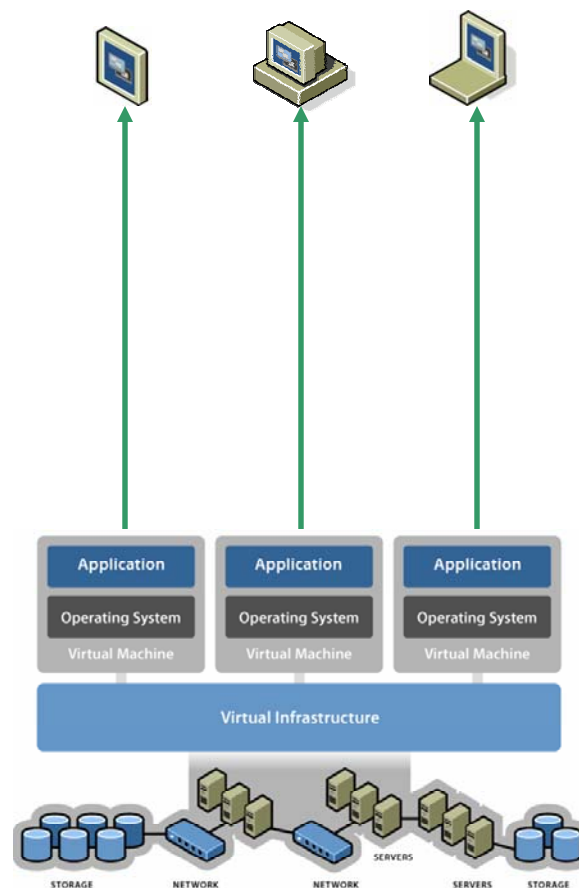
What is Virtualization?



- Virtualization provides hardware virtualization that presents a complete x86 platform to the virtual machine
- Allows multiple applications to run in isolation within virtual machines on the same physical machine
- Virtualization provides direct access to the hardware resources to give you much greater performance than software emulation
- Differs from terminal services in that it provides total isolation of application environment and delivers the full capabilities of the OS

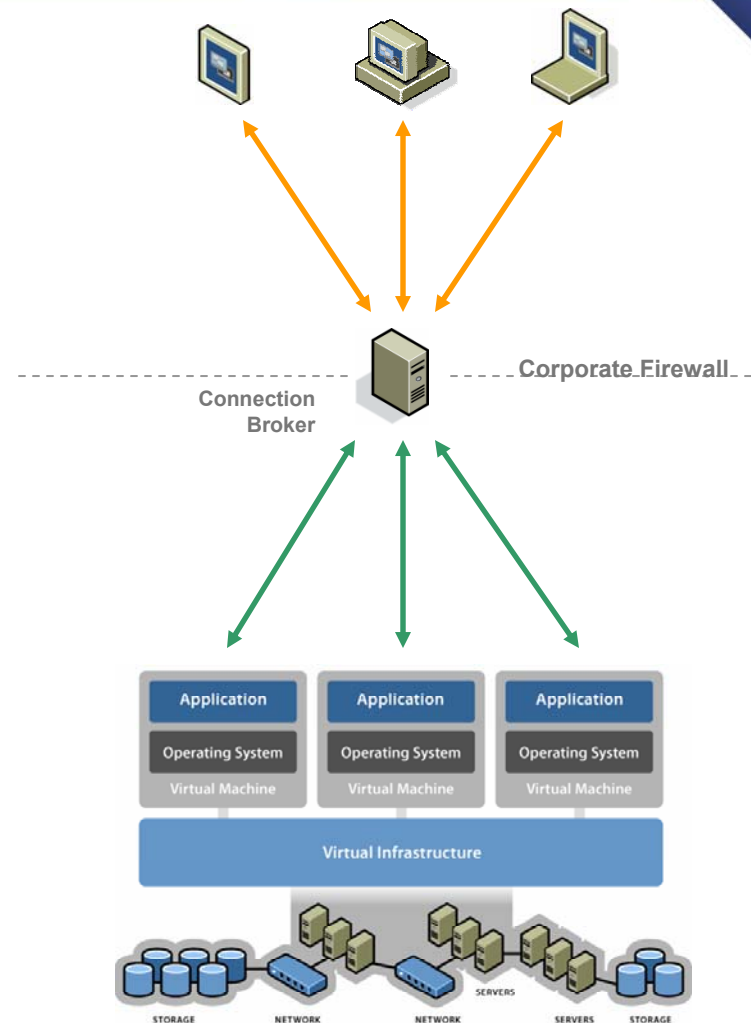
Virtual Desktop Architectures – Basic Implementation

- A “One-to-One” relationship between endpoints and Virtual Machines is established
- End-users are assigned the hostname of a VM which belongs to them.
- Connections take place over an existing secured corporate network.
- Remote viewing of VMs is done through desktop RDP software or the built-in features of a thin client.



Virtual Desktop Architectures – Brokering

- End-users are given a public web address for the connection broker.
- After authenticating, the connection broker provides a list of available resources to the end-user.
- The connection broker links the end-user via an encrypted tunnel to the VM.
- The encrypted tunnel is a mini-VPN component designed to route only desktop traffic.



Architecture

Physical Workspace



Virtual Desktop Management

Management Server & Connection Broker

Keyboard → Mouse → USB →
← Display Images ← USB

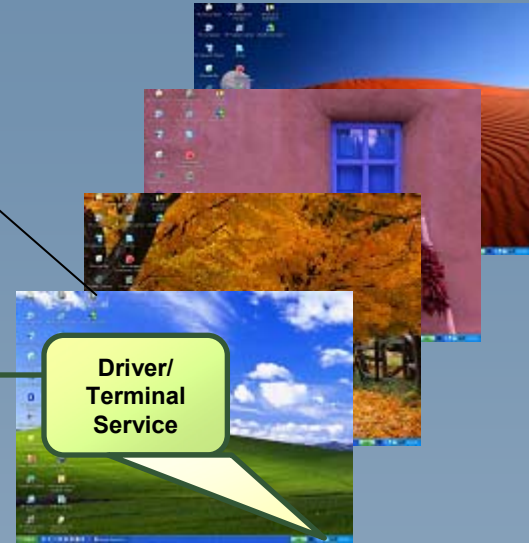
Desktop Management Tools

Directory Services

Virtual Infrastructure Manager

Server Hosted Virtual Desktops

Desktop Virtual Machines



Hypervisor

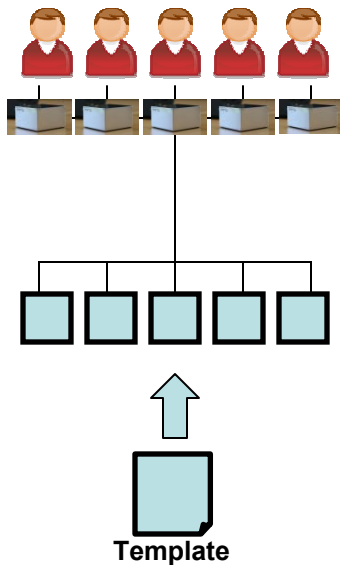
Server Hardware

Usage Models for Virtual Desktops

Pooled Collection

Structured Task Workers

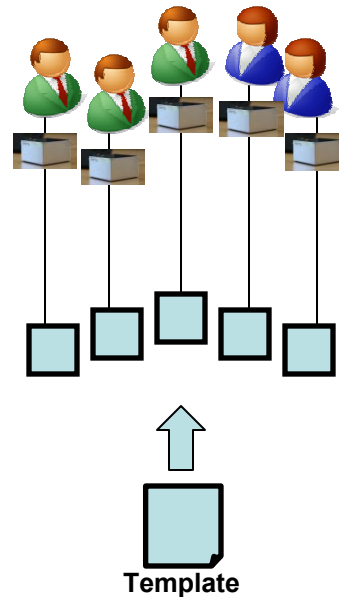
Nurses, Doctors,...



Cloned Collection

Knowledge Workers

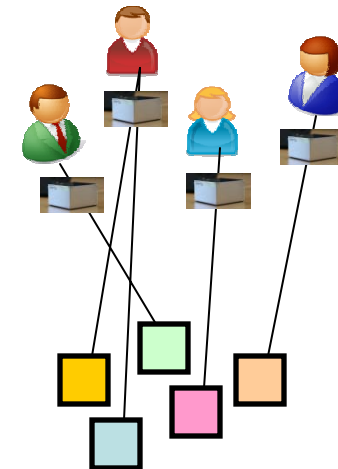
Finance, IT,...



Custom Collection

Specialized Users

P2V



The Big Desktop Management Challenges

Total Cost of Ownership

Patch & Configuration management

Problem Diagnosis & Resolution

Break / Fix

Power consumption & environmental factors

Backup & recovery

Security

Patching vulnerabilities

Anti-malware

Compliance

Intellectual property leakage

Forensic reporting

Business Agility

Globalization & Data Privacy

Workspace efficiency

Business continuity & disaster recovery

Dynamic allocation of work environment

Roaming access

3 year TCO for a corporate PC is over \$4500 (source: IDC)

Virtual Desktops - Benefits Overview

- Reduces Operating Costs by up to 70%
 - Reduce deployment and move/add/change costs
 - Reduce power consumption
 - Reduce Service Tickets
 - Set up groups of users or departments in minutes!
- Improves Data Security and Compliance
 - Faster patch and update
 - Centrally managed storage device access
- Improves User Productivity and Satisfaction
 - Ability to install SW and personalize their environment
 - Self-Help automated problem resolution



Healthcare - Use Cases

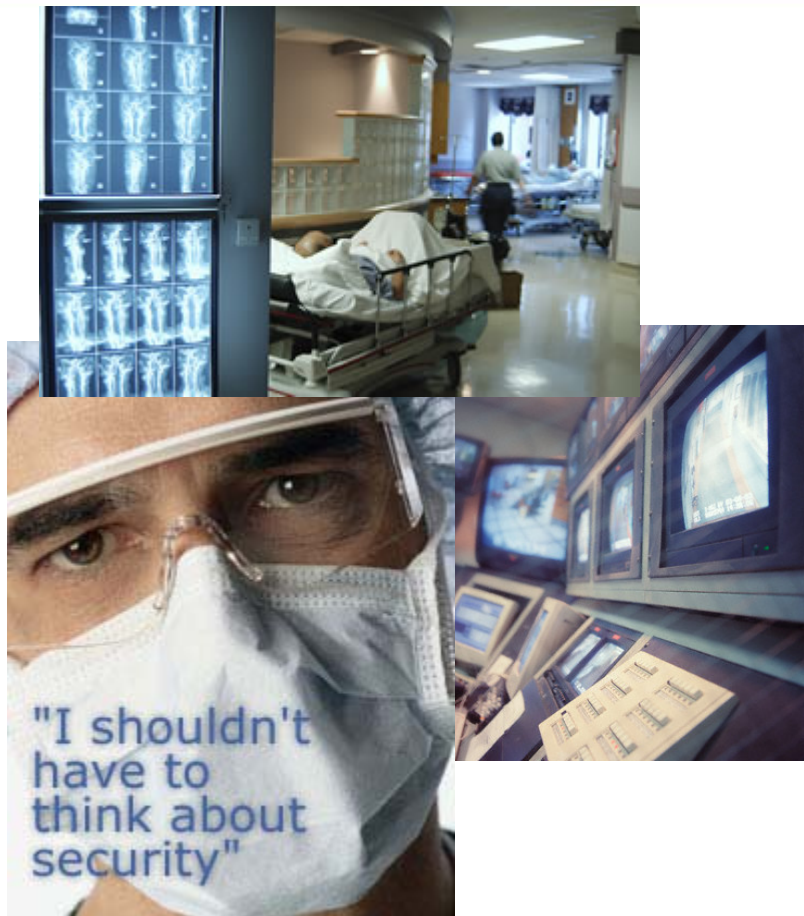
Virtual Desktops in Action – Healthcare



Increased Efficiency and Reduced Costs

- Roaming provides quick access to the desktop/HIS etc. from any room for all staff
- Fast sign-on allows for sub 5 second connections as staff roam
- Location-based controls allow for restricted access to patient records
- Secure and HIPAA compliant – no patient data on the device

Improved Security



Increased Efficiency and Reduced Costs

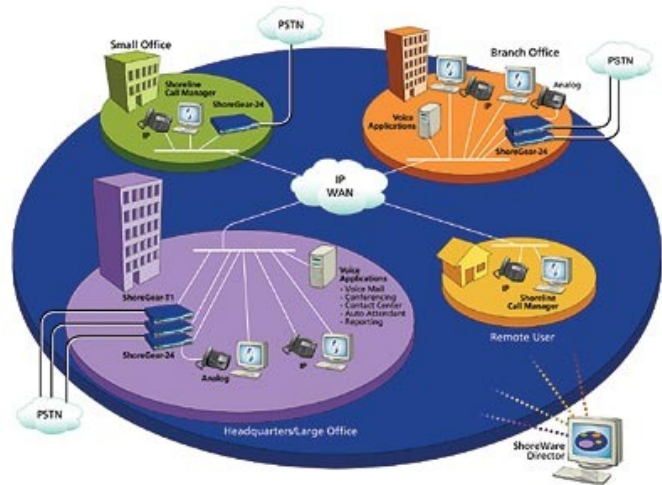
- No data on end points is ideal
- HIPAA/PIPEDA compliance – reduce the risk of data loss/leakage
- Support for thumbprint and smart card authentication
 - Speeds access/easier for staff
- Compatibility with wristband identifiers, which means fewer medical errors, more accurate patient records.

Access Through *Thinner* Desktops!



- Reduced power consumption is great for carts can be as low as 5% of traditional PC...triple battery life
- Small device footprint saves space
- No data on the endpoint provides ultimate patient protection
- All of the capabilities of a traditional PC??? No but...
- Common failure points reduced or eliminated

Remote Healthcare Workers



Seamless Access to Centralized Desktop Resources

- Only thin devices at the remote office eliminates maintenance and truck rolls.
- Optimized for the bandwidth and latency of wide area networks
- Virtualized desktop server can reside in a secure, managed datacenter
- “Office in a box” concept allows for server to reside in the remote office but can be managed remotely over the WAN...ideal for restricted bandwidth situations.
- Ideal for regional hospitals, medical offices
- Organizations with multiple locations can serve all their patients from any facility because records are stored centrally on network servers

Rolling Out

- Play it safe....pick an area to pilot that has low risk and low visibility...i.e. training rooms or kiosks
- Determine use cases and requirements prior to technology selection
- Look at future use cases and pending legislation as part of the decision making process
- Benefits should improve healthcare not just provide technology and financial benefits

About Pano

- *Pano Logic has created the first zero client desktop computer that moves all desktop software to the server, reducing IT complexity and offering users a superior Windows experience. Pano's complete solution enables businesses to:*



Thank you

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