



Desktop Virtualization Technology

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Agenda

- CIO Priorities
- Market Direction
- Current Desktop Landscape
- Lessons Learned
- Successful projects
- Questions



CIO Priorities

Top Ten State NASCIO CIO Priorities- 2009

Business Strategies

1. Consolidation
2. Shared Services
3. Budget & Cost Control
4. Security
5. Electronic Records Management/ Digital Preservation/ E-Discovery
6. ERP Strategy
7. Green IT
8. Transparency
9. Health Information Technology
10. Governance

Technologies

1. Virtualization
2. Document/ Content/ Email Management
3. Legacy Application Modernization (ERP)
4. Networking and Unified Communications
5. Web 2.0
6. Green IT
7. Identity and Access Management
8. Geospatial Analysis/ GIS
9. BI and Business Analytics
10. Mobile Workforce Enablement

Top Ten State NASCIO CIO Priorities- 2009

Business Strategies

Technologies

1. Consolidation
2. Shared Services
3. Budget Cost Control
4. Security

1. Virtualization

7. Green IT
8. Transparency

4. New Services Enabled
6. Green IT
7. Identity and Access Management

10. Governance

10. Mobile Workforce Enablement

Desktop

Virtualization

Top Ten State NASCIO CIO Priorities- 2009

Business Strategies

1. Consolidation
2. Shared Services
3. Budget & Cost Control
4. Security

7. **Green IT**

10. Governance

Technologies

1. Virtualization

4. Networking and Unified Communications

6. **Green IT**

7. Identity and Access Management

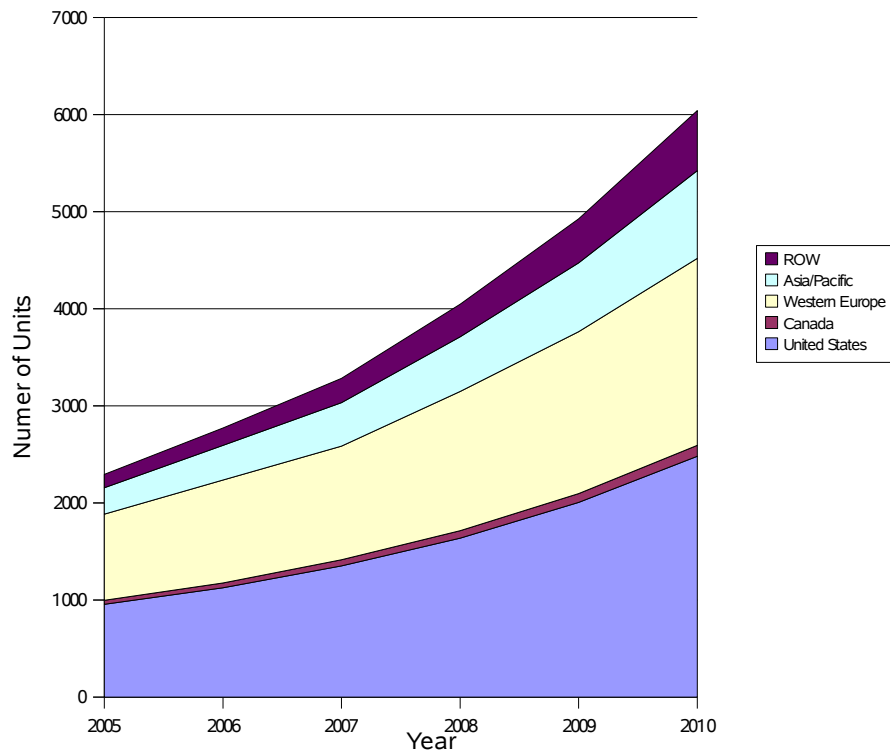
10. Mobile Workforce Enablement



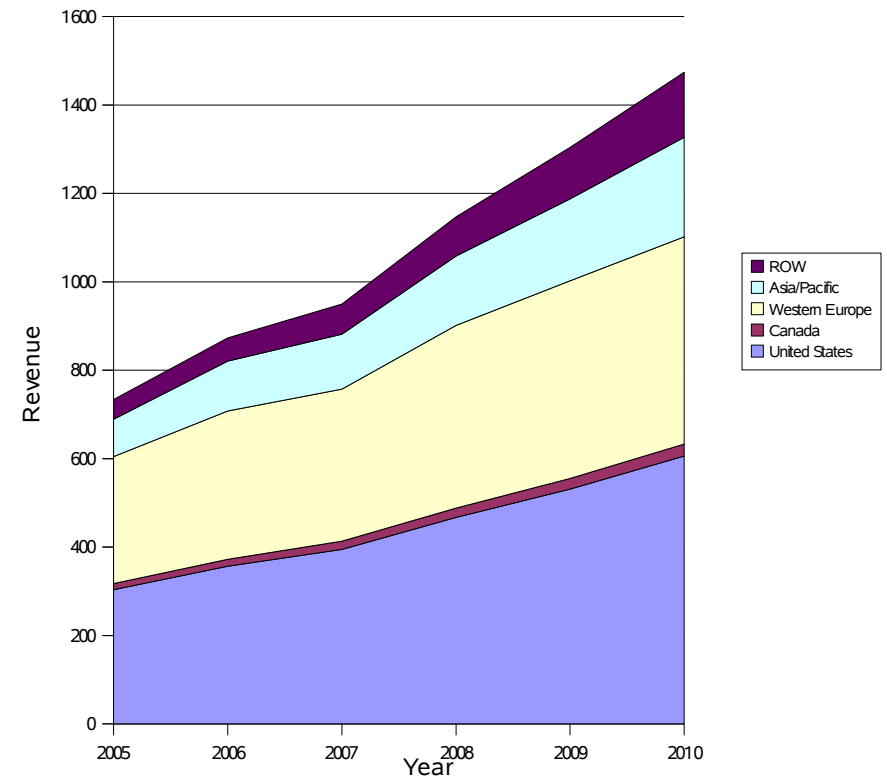
Market Direction

The thin client market is growing...

WW Thin Client Unit Forecast '05-'10 (000)



WW Thin Client Forecast '05-'10 (US\$M)

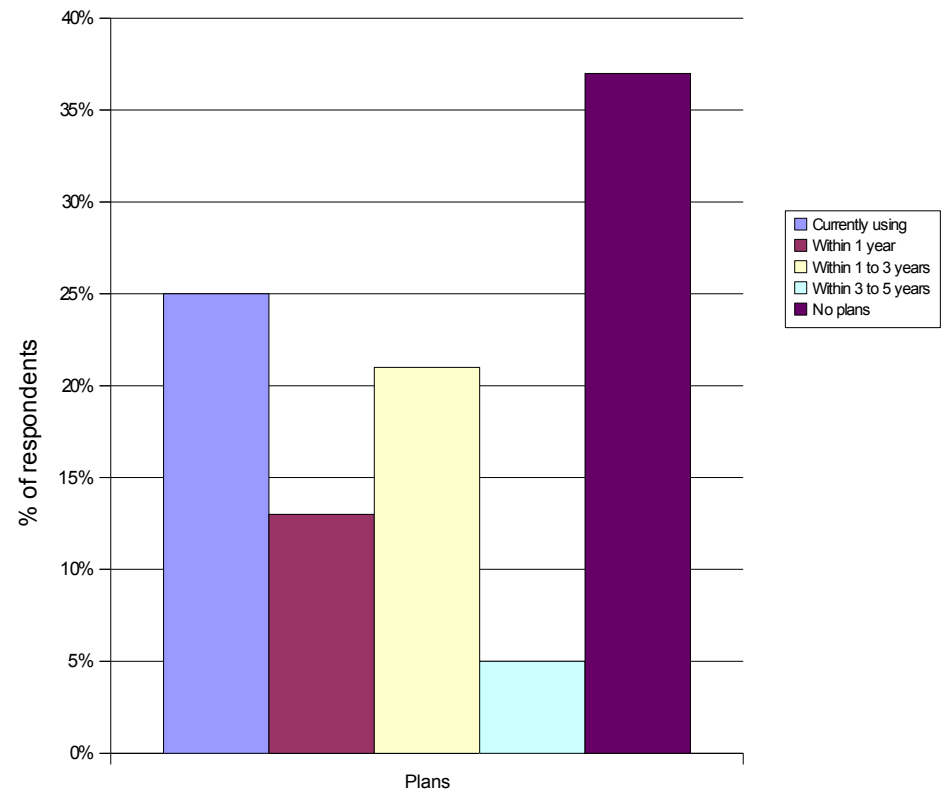


Source: IDC Thin Client Forecast, Dec. 2006

What is the current state of virtual desktops?

25% of the 300 CIOs interviewed by CIO Magazine use virtual desktops today.

Plans to deploy virtual desktops

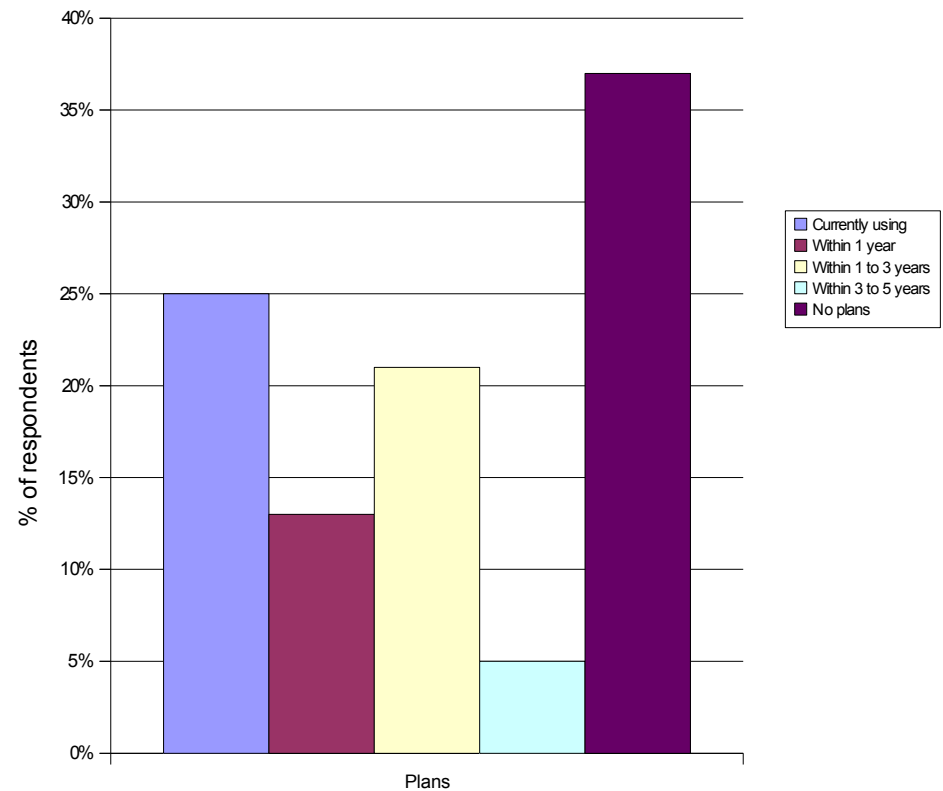


Source: CIO Research 1/2/2008
<http://www.cio.com/article/print/168401>

What is the future of virtual desktops?

63% of the CIOs interviewed by CIO Magazine plan to deploy virtual desktops within the next 5 years

Plans to deploy virtual desktops



Source: CIO Research 1/2/2008
<http://www.cio.com/article/print/168401>



Current Desktop Landscape

Current Desktop Landscape

What is a Desktop?

Your desktop isn't a device, it's where you get your work done



Microsoft
Windows



Mac OS X

Microsoft
Windows



solaris

Microsoft
Windows

Current Desktop Landscape

Application and Desktop Evolution

From Simple Terminal Applications To Rich Network Desktops

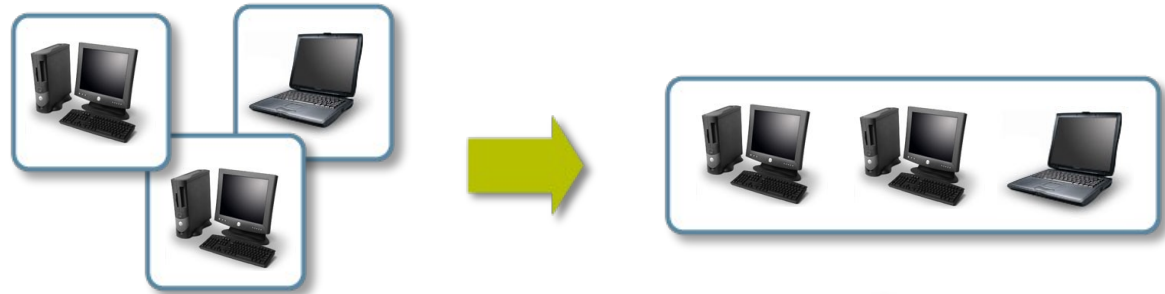


Current Desktop Landscape

Desktop Challenges

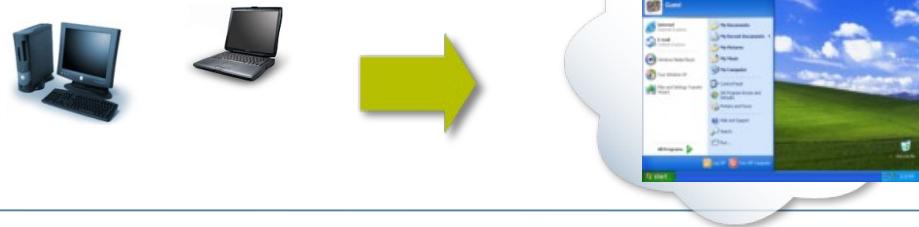
Centralize Computing Resources

- Move under-utilized computing and storage resources back from the edge of your network



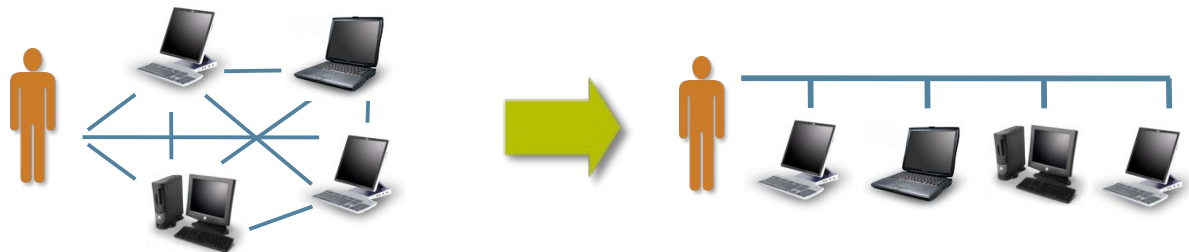
Increase Security

- Desktop environments that are hardware independent and no localized data



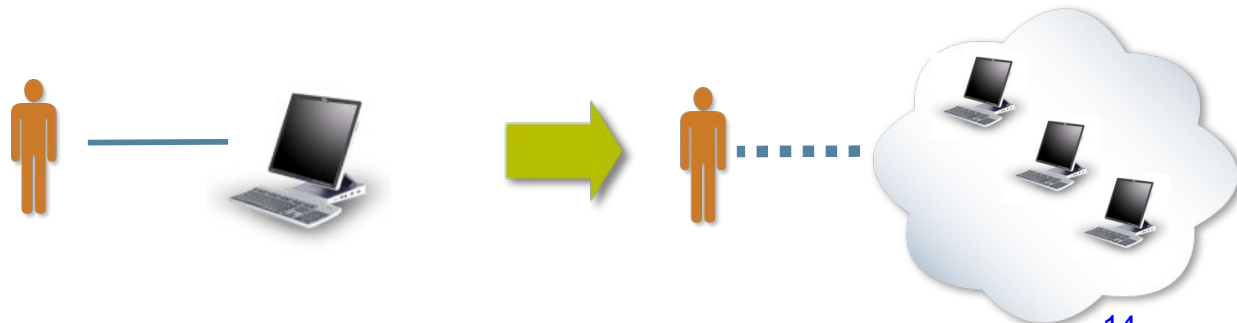
Streamline Management

- Use a single set of desktop tools for both full desktop devices and thin clients



Improve Flexibility and Access

- Quickly provision new desktops and applications to users
- Business Continuity



Current Desktop Landscape

Emerging Access Requirements

Disasters

Need for Instant Desktop Recovery & Provisioning

Quickly recover, re-provision and re-establish user access to ensure business continuity.

Alternative
Workspace

Need for Remote Offices, Virtual Offices, Hoteling

Support for a virtual work environment where users have alternative access to complete desktop resources while working remotely.

Outsourcing

Need for Secure and Controlled Access by Outsourcing Entities

Secure data and resources within the corporate data center and provide outsourced or offshore developers.

Compliance

Need for Desktop Consolidation & Standardization

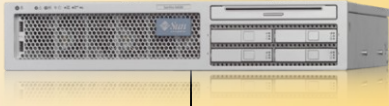
Contain desktop proliferation and build a standardized, centrally-managed desktop environment that adheres to internal and external compliance guidelines.

Benefits of Desktop Virtualization

- Improved Security
- Access Device Independence
- Remote Access
- Better Performance
- Management features
- Resource utilization
- And more

Current Desktop Landscape

Virtualized Desktop Options



One operating system is used to service multiple users. Each user has a separate session but shares the operating system and applications with others.



Multiple Users Per Server



Each user has a dedicated blade system and operating system. Applications are installed individually for each user and the blades are managed individually.



Each User With Dedicated Blade



Like the blade solution, but each user's system is a virtual machine instead of a physical one. OS and applications are installed and managed individually.

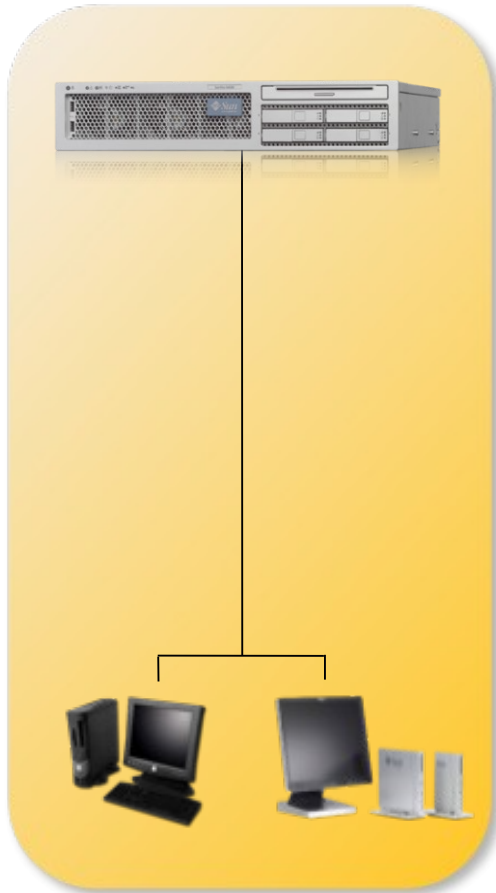


Each User With Dedicated VM (VDI)

Current Desktop Landscape

Server Based Computing

Multiple Users per Server

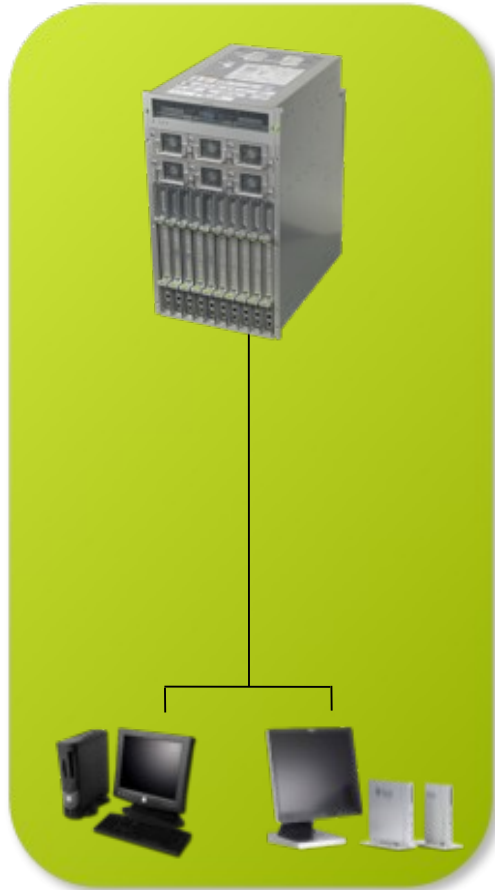


Multiple Users
Per Server

- Significant Administrative Advantages
- Lowest Cost
- Most Efficient Use of Resources
- Can be Windows Terminal Server, Solaris or Linux based
- Shared resources with little to no policy control
- Some Applications are not multi-user aware
- Some user tasks cannot be accomplished

Current Desktop Landscape

Dedicated Blade per User



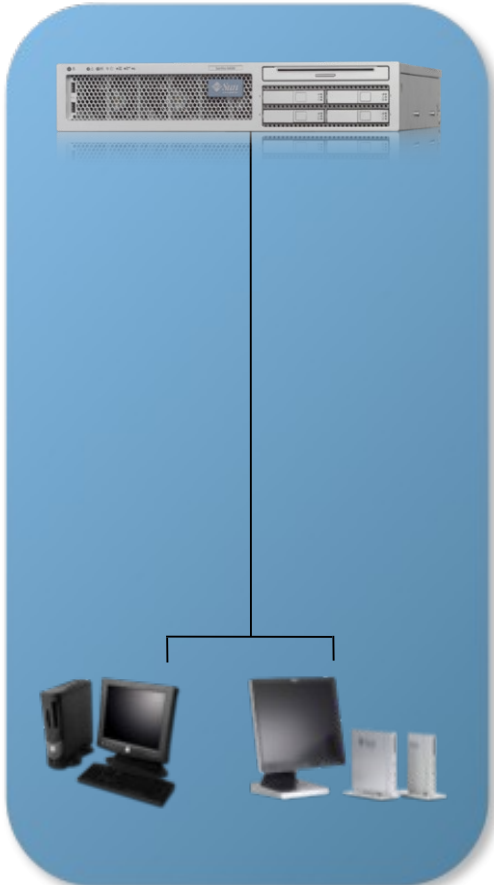
Each User With
Dedicated Blade

- Data Center 'ility advantages
- OS Images usually stored on SAN
- Typically Windows XP based
- Dedicated resources per user
- Same security and access advantages
- Not very flexible
- No licensing or resource advantages over PC's
- Some small Administrative benefits

Current Desktop Landscape

Dedicated VM per User

Virtual Desktop Infrastructure (VDI)



Each User With
Dedicated VM (VDI)

- Baseline advantages of Blade Virtualization
- High Flexibility and large Feature set
- Highest Cost
- Efficient Use of Resources
- Typically Windows XP based
- Shared resources with significant policy based resource controls
- All applications and User activities are supported
- No software licensing advantages

But which one to choose?

It's ALWAYS about the applications... and sometimes about the users.

- Look at the Application set first
 - > Multi-user aware?
 - > Resource requirements
- What activities do the users need to do on their desktop
 - > Install/remove software
 - > System level configuration (services, devices, etc.)
- You can choose more than one Virtualization option
 - > SBC for Call Center
 - > VDI for advanced users/applications.

Virtual Desktop Solution Dream



**Secure Desktop Access
from any device, from anywhere**





Lessons Learned

What Customers Tell Us

- True Server Based Computing
- No Viruses
- No Data Theft
- Ease of deployment varies
- Desire better MS Integration
- Desire more features



Lessons Learned

- Important to understand the requirements of the users (applications and functions)
 - > Logically group users by type. Lite to heavy. Application sets. etc.
- Fixed function users such as call centers are good candidates
- Basic questions are usually the best
 - > Where are the users located?
 - > What applications do they run?
 - > What are their typical daily computing tasks?



Lessons Learned

- Well Defined Success Criteria
- Look for any special telephony requirements
- What about Printing?
- Are there any other peripherals?
- Network, Network, Network
 - > DNS, DHCP issues
 - > AD Domain controller sync
- Use a prototype to develop sizing guidelines
- Political and Infrastructure battles
- It takes time . . .

Lessons Learned

What makes a successful project?

- Use a qualification questionnaire
- Define success criteria and next steps
- Partner with a technology company for help
 - > Trusted Advisor
 - > Help to define your requirements & use cases
 - > One that has done it before
- Don't try to boil the ocean
 - > Pick a specific group of users
 - > Move to next group,
 - > Repeat
- Don't force technology in a situation that doesn't fit the solution.
 - > You will waste tons of time and money





Case Studies

REUTERS

Problem	Solution	Benefits
<p>IP at Risk in Traditional PC Model</p> <p>No Pandemic Plan for Workplace</p> <p>Concerns About Viruses</p> <p>Limited Space</p>	<p>Deploying VDI</p> <ul style="list-style-type: none"> - Virtualization Software and management Tools - Servers and Storage - Thin clients -over 500 desktops deployed 	<p>Easier to Manage</p> <p>Business Continuity Built In</p> <p>Set Up New Work Environments In Minutes</p> <p>Lower Costs</p> <p>Transport Desktop Sessions Between Devices</p>



UAB Health System

Industry: **Healthcare/Providers**

Challenge

- Deliver patient information at point of care
- Provide secure information access while maintaining privacy
- Aggregate information from disparate systems

Solution

- UAB deployed thin clients, servers, Solaris, and Software technologies to aggregate patient information and deliver it across all points of care.

Results

- Provides faster access to patient records at point of care
- Lowers maintenance and support costs
- Provides a faster return-on-investment (ROI)
- Preserves investments in legacy systems

• *“We use technologies and tools to take information in disparate systems and repackage it so that health providers can have the information they need to improve health care delivery.”*

• — *Michael Waldrum, M.D., Chief Operating Officer, UAB Health System Foundation, P.C.*

King's Daughters Medical Center

Industry: Healthcare/Providers

Challenge

- Manage 1,100 computers with nine IT professionals
- Maintain up-to-date antivirus and antispyware programs
- Audit employee access to applications to comply with HIPAA

Solution

- KDMC deployed more than 30 thin clients to eliminate complex, costly and time-consuming administration of PCs.

Results

- Reduced administration time by 97%
- Enabled rapid deployment to support grand opening
- Reduces cost and complexity of audits to comply with HIPAA
- Lowers total cost of ownership (TCO)

“What really sold us was the advanced authentication combined with mobile sessions for our health care professionals. As an administrator, I don't have to worry about what applications are loaded on which PCs. Session mobility is the number one benefit that that everybody wants.”

•— Chad Phipps, PACS Administrator, KDMC



Questions ?

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Thank You !

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