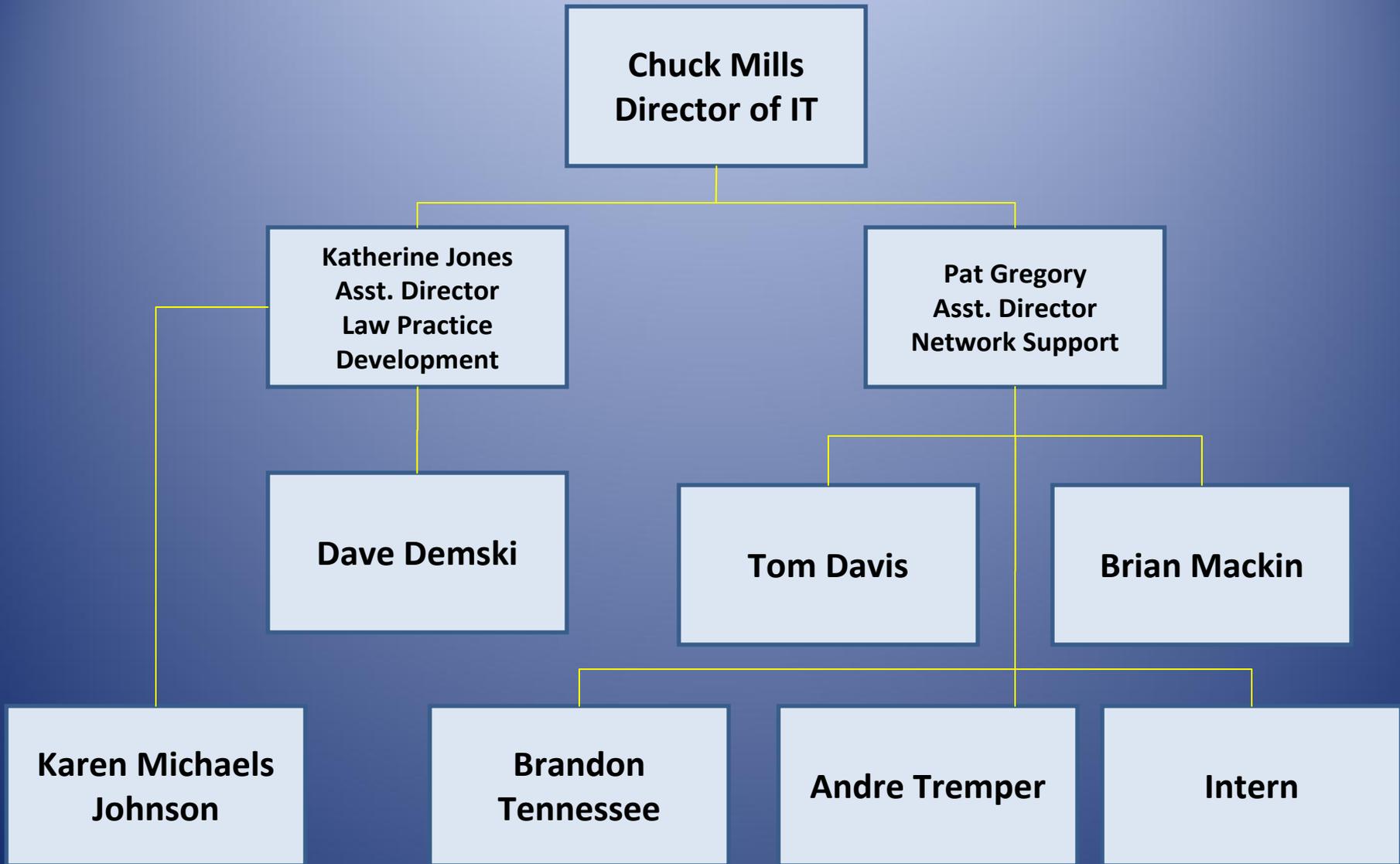


Green Your IT and Reduce Costs through Virtualization

Maryland Legal Aid

- Only LSC funded organization in Maryland
- Statewide program serving Baltimore City and all 23 counties
- \$23 Million total budget
 - 150 Attorneys
 - 65 Paralegals
 - 40 Support Staff
 - 45 Other
 - 300 total users
 - 150 in Baltimore City and 150 in county offices





Previous Datacenter Virtualization Experience

25 Employees

6 Servers

\$3000 Budget

Used free version for 100% server consolidation

Virtualized servers provided all reporting for state agencies

Created Virtual Desktop solution

Approach and Procedures will scale to any size environment



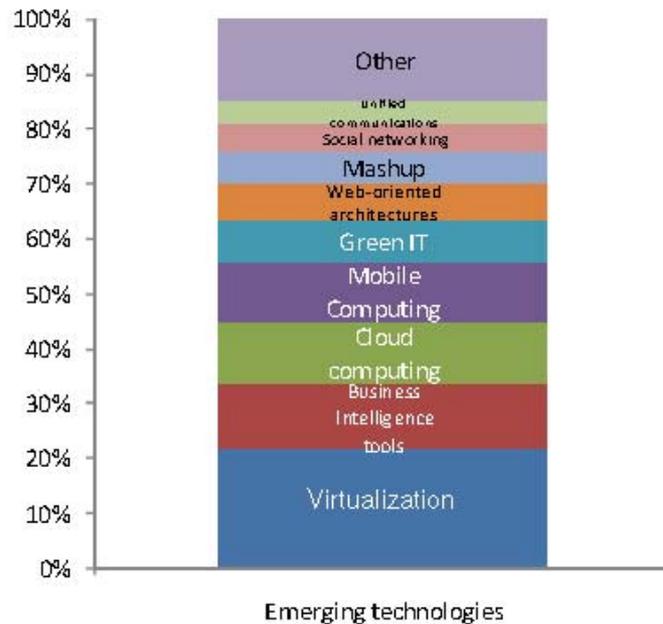


Virtualization, indicated as the most exciting emerging technology, has been or will be adopted by ~50% companies

Q. Of the following emerging technologies which one excited you the most?

Q. And which of these technologies have been adopted or will be adopted by your company in 2009?

% of respondents



LinkedIn's Technology Trends & Compensation Study
North America

August, 2009

Purpose of This Session

Describe 3 Prong Approach for Virtualization

- Server Consolidation
- Virtual Desktop Infrastructure (VDI)
- Application Virtualization

Presentation Structure:

- Reasons
- Approach
- Results
- Lessons Learned

In the Beginning - Summer 2008

Baltimore City Office (Datacenter)

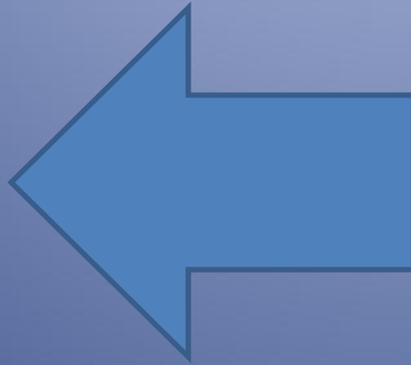
- 150 workstations
- 12 physical servers

County Offices

- 10 locations throughout the state
- 150 workstations

No Disaster Recovery Site

Physical Servers



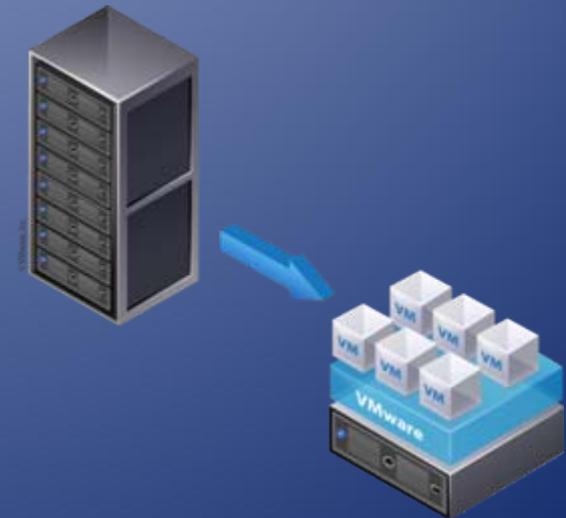
- Domain Controllers
- Exchange Server (300-400)
- Case Management DB server
- Case Management App server
- Finance
- Donor Tracking
- Anti-Virus Server
- Intranet
- Bankruptcy
- File and Printer Sharing
- User files/profiles

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Server Consolidation

Reasons:

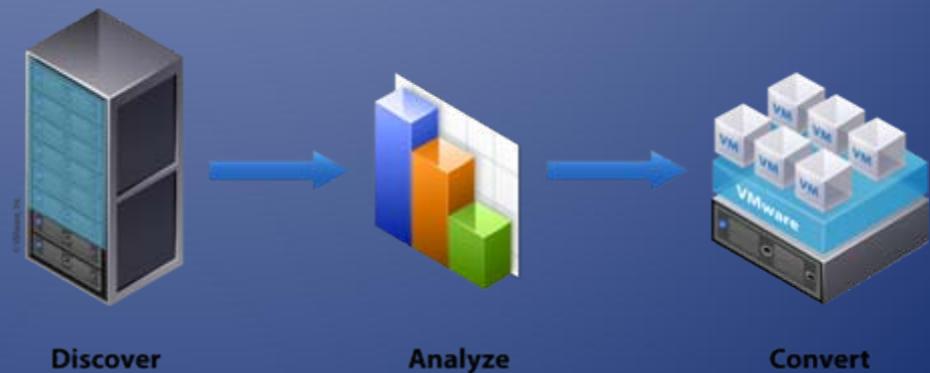
- Create a disaster recovery site
- Reduce downtime
- Eliminate hardware dependency
- Save energy – Cooling cost



Approach:

- Evaluated the physical environment
- Used guided consolidation
- Reviewed system monitoring results
- Developed a P2V plan with checkpoints
- Started with “low hanging fruit”
- Converted no more than two servers at onetime

Virtualized Everything!

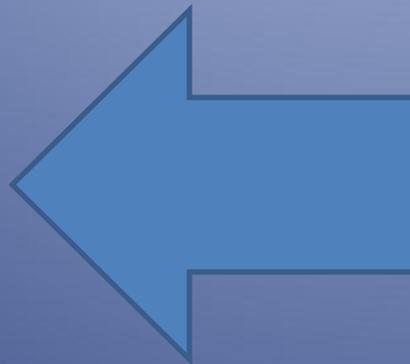


Results:

Consolidated to three **physical** servers while more than doubling our **virtual** production servers

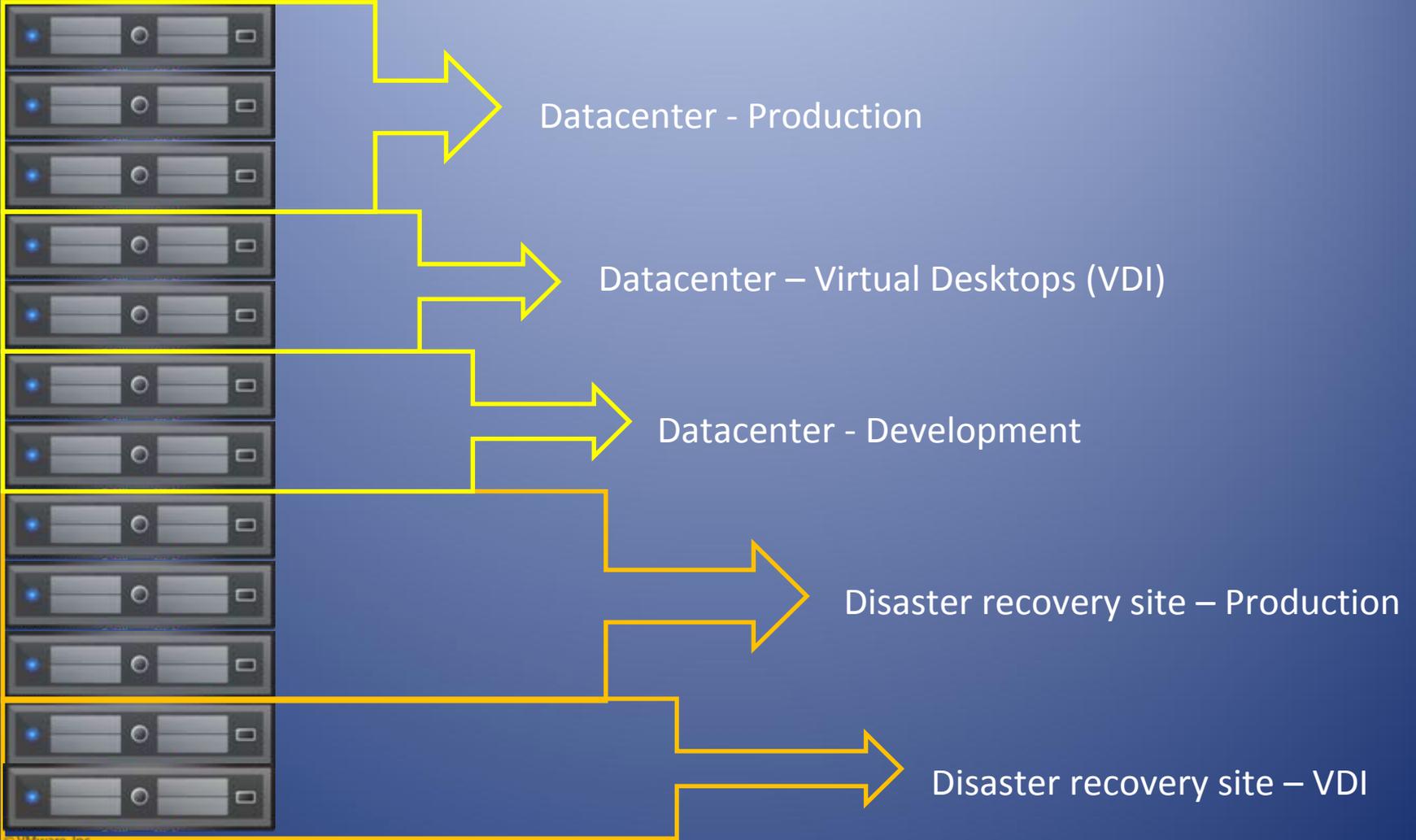


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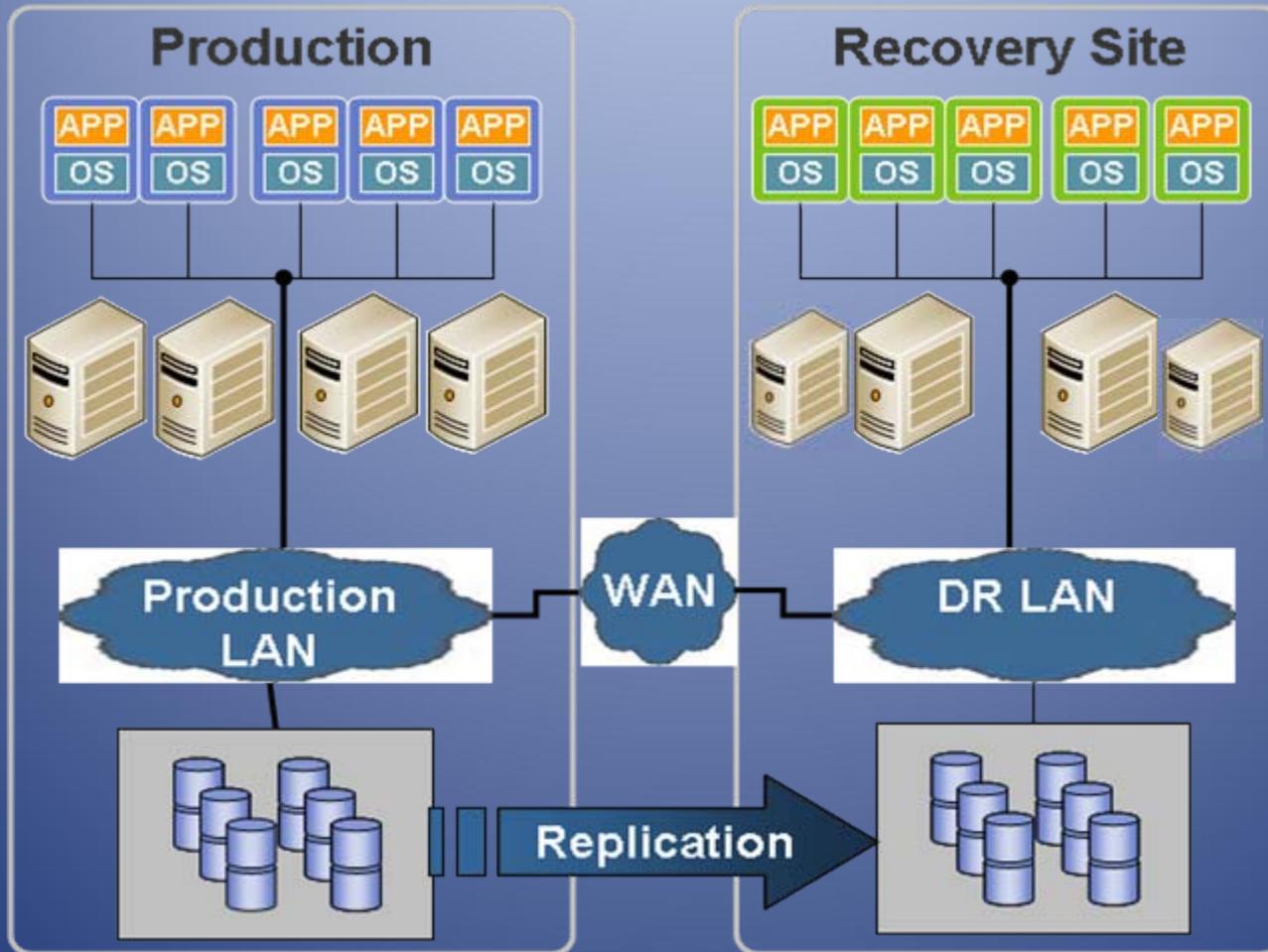


- Domain Controllers
- Exchange Server (300-400)
- Case Management DB server
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- Finance
- Donor Tracking
- Anti-Virus Server
- Intranet
- Bankruptcy
- File and Printer Sharing
- User files/profiles
- Help Desk
- Blackberry Server
- Printer Monitoring
- Network Monitoring
- Netflow Analyzer
- Case Management Test DB
- Case Management Test App
- Router Recovery Server
- New Intranet
- New Bankruptcy
- Sharepoint Server

Freed Resources



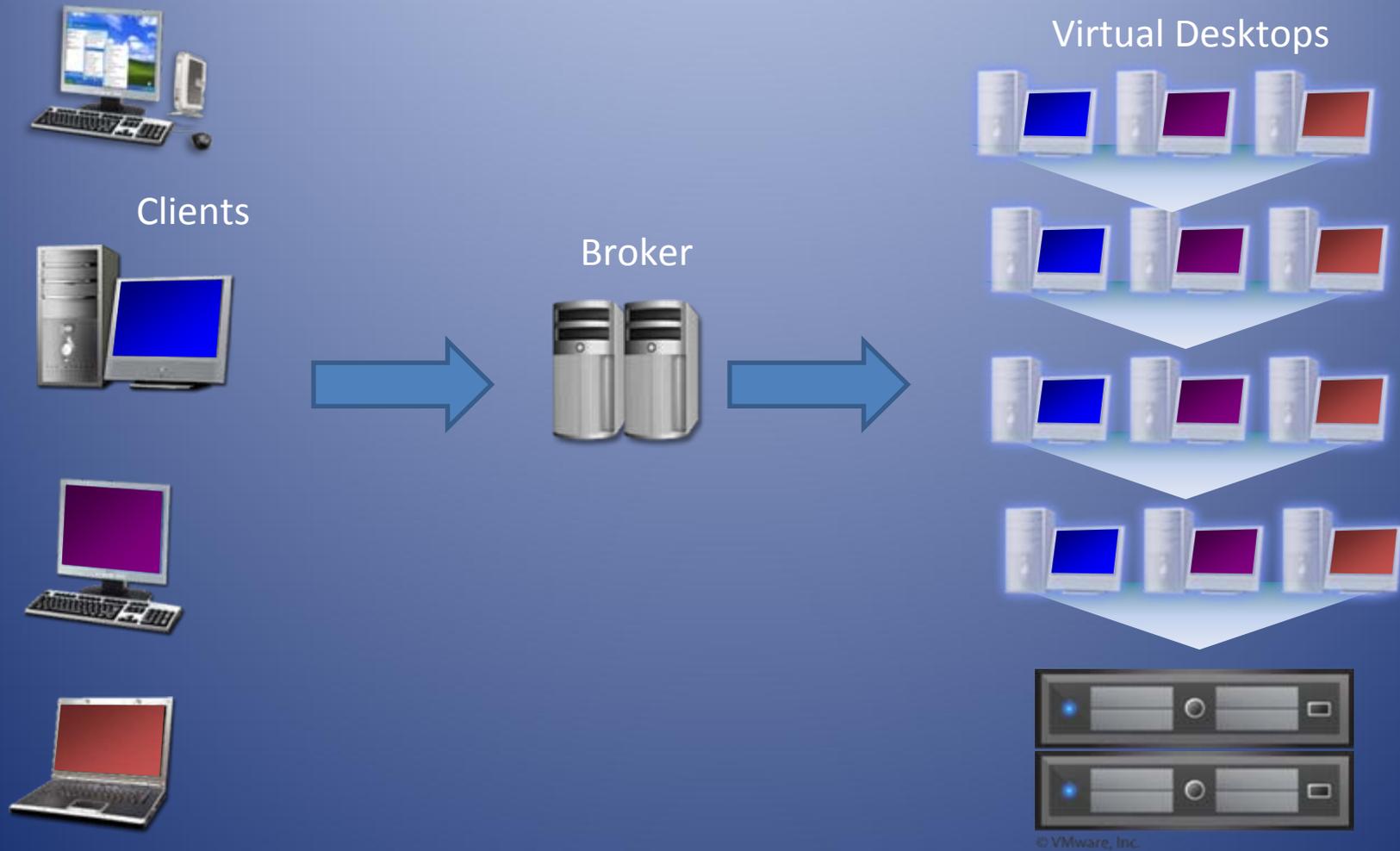
Created a Disaster Recovery Site – Equal in Strength



Lessons Learned:

- Best time to virtualize servers
- What users thought/knew about consolidation
- Take the time to plan
- Cold cloning vs Hot cloning
- Follow baseline checkpoints
 - Windows services
 - Event viewer
 - Network settings
- Maintain a fall-back plan

Virtual Desktop Infrastructure - VDI



Desktop Virtualization

Reasons:

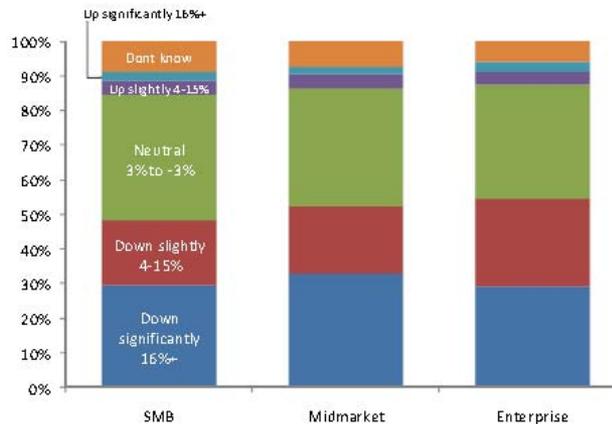


PC Budgetary Trends: Economic downturn has significant negative impact on PC budget; >50% of companies rate PCs as mission critical

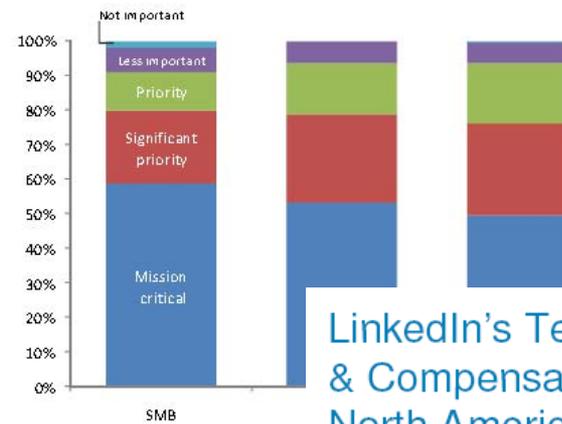
Q. How has the economic downturn impacted the overall budget for PCs? [by company size]

Q. How important is PCs to your companies' continued overall success? [by company size]

% of respondents



% of respondents



LinkedIn's Technology Trends & Compensation Study
North America
August, 2009

Maryland Legal Aid's Challenges

- Supporting desktops is time consuming
- Remote Access – Offices – Court House
- Work from home solutions
- Non-XP users (MAC - Vista)
- Your desktop from anywhere
- High staff turnover
- Protect client data
- Disaster recovery

Approach:

- Solidly built OS and applications
- Involved the IT team for testing
- Created a focus group
- Used the training lab for the first roll-out
- Developed a user profile solution
- Researched best solutions for User End Points
 - Repurpose current workstations
 - Thin Clients (XP and non-XP Based)

Results:

- Focus group exploded
- Combined with VPN - Solid remote solution
- New application rollout
- Use with Netbooks (organization and personal)

Lessons Learned:

- Local printer issues
- Thin Clients
- Application in a virtual environment
- Create a solid virtual desktop
- Only way to test new application and operating systems

Application Virtualization



Reasons:

- Results of 2007 upgrade
- Control of desktop application
- Failed application installs and travel
- Reduce time for new application rollout

Approach:

Utility programs

Immediate results!

VNC Server

- Virtualized and push it to workstations
- Start to finish - less than 3 hours

Other utilities

- Ccleaner
- Spybot
- PDF converters
- MW Snap
- Quicktime Player
- Adobe Flash Player
- Free OCR
- Media players
- FoxIT Reader
- E-Transcript Viewer

Results:

Applications virtualized:

- Case Management System
- Office and Outlook
- Alimony & Support Calculators
- Audio Players and Converters
- Financial Package client
- Adobe Reader
- Web Browsers
- Utility Applications

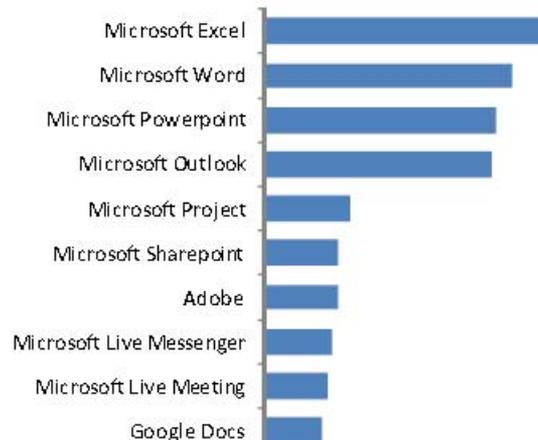
Lessons Learned:

- Need version control
- Create a virtualize first policy
- Very fast new application deployment
- OS version independence
- Browser choices



For information workers, Microsoft Excel is the most widely used software product

Q. Which of the following software products do you use?



Q. On a scale from 1 to 5, what is your overall satisfaction with the following tools?

	Very satisfied	Somewhat satisfied
iPhone	62%	32%
Microsoft Excel	46%	37%
Microsoft Word	36%	43%
Microsoft Outlook	32%	36%
Microsoft PowerPoint	36%	32%

LinkedIn's Technology Trends & Compensation Study
North America
August, 2009

Conclusions:

Virtualization has allowed Maryland Legal Aid to transform the Datacenter very quickly.

Server consolidation provided the benefits of virtualization and freed the resources needed to build a disaster recovery site and virtual desktop environment.

Our virtual desktop project provides superb support for our organization along with the vision of “your desktop anywhere”.

Application virtualization solved serious software deployment problems and created an immediate positive impact with our utility software approach.



Generate a quick success to:

Create confidence in management

Create confidence the users and

Create confidence in the IT staff

Start with a winner.

Virtualization is a new concept, so plan for success; a positive outcome from the start sets the tone for future projects.

Virtualization works, it really works.



Benefits:

- Disaster Recovery Site with no additional server cost
- Data circuit and network cost savings – \$200,000
- Reduced travel expense
- Reduced downtime
- Utility cost savings
- Solid upgrade path

NON-PROFIT

VMware ThinApp Helps Legal Firm Streamline Application Management



"There's hardly even a need to visit remote PCs to deploy apps anymore, now that we have ThinApp. The amount of time spent on remote visits must have been cut by 90-95 percent."

— Chuck Mills
Director of IT,
Maryland Legal Aid

KEY HIGHLIGHTS

Challenge

Streamline application delivery and maintenance in a distributed organization

Results

• Conduct application upgrades in hours, not

Maryland Legal Aid

The Maryland Legal Aid Bureau (Legal Aid) is a private, non-profit, multi-funded law firm providing free legal services to low-income people throughout Maryland. In operation since 1911, Legal Aid currently has 13 office locations to help fulfill its mission.

The Challenges

With offices spread throughout the state, Legal Aid's IT team has its work cut out for it when IT services and applications need to be installed or upgraded. "We do not give administrative privileges to our end-users—only the IT folks can install software," said Chuck Mills, Director of IT for Legal Aid. "That means that during a recent operating system upgrade, we had to touch every PC in our organization. There were 150 PCs housed at our central location and 150 more at remote locations statewide—it was a real logistical nightmare."

Sometimes, the software installations that the IT team has to handle are smaller in scale, but no less important in nature. "There are a lot of proprietary software applications that are used in the legal world," explained Mills. "If one of our attorneys needs access to a



Baseline[®]

PIECING TOGETHER A 2010 STRATEGY

tion and provides enhancements for internal data centers and business continuity.

Chuck Mills, director of IT at the Maryland Legal Aid Bureau, a Baltimore-based not-for-profit organization providing services to the poor at 13 offices across the state, says that the bureau benefits from a private cloud that allows the organization to “create resource pools across the WAN.” This approach has helped the bureau trim its servers from 24 to 12, while also boosting availability and improving disaster recovery.

Peering Through the Cloud

Recent research shows that companies of all sizes are interested in a cloud computing project while they struggle with how it can benefit their business.

By Peter Bartolik

Contents

- 1 Executive Summary
- 2 Defining Cloud Computing

>> **"I think cloud is one of those buzzwords that excites everyone, but I just don't know if anyone has a really good grasp of what exactly it means," says Chuck Mills, director of IT at Maryland Legal Aid, Baltimore, Md.**

According to the IDG survey, 49 percent of the respondents are either currently investing in cloud computing or are planning to do so. Conversely, 51 percent said they had no such plans. Larger enterprises were somewhat more inclined to employ cloud computing, with 52 percent of the respondents in the enterprise class identifying themselves as making or planning to make such investments. SMBs, on the other hand, were more likely to forgo cloud computing: 53 percent of the SMB respondents stated that they had no planned investments in this technology.

Although some with no planned investments may simply not be interested, others may not yet see a cloud option specific enough to their needs. Chuck Mills, director of IT at Maryland Legal Aid in Baltimore, Md., has no problem with service providers' hosting payroll and HR applications but doesn't yet see the flexibility that would enable him to migrate his core applications to a cloud environment without having to adapt to the cloud provider's architecture. "I think cloud is one of those buzzwords that excites everyone, but I just don't know if anyone has a really good grasp of what exactly it means," he says. Mills believes that "people are clamoring for" fault tolerance and disaster recovery capabilities and adds, "We hear that cloud computing might be that vehicle, but I don't know that we know that yet."



Cost controls may play a big role in those disparities. Almost two-thirds of the SMBs indicated that lower capital expenditures were a factor in their investment, and 51 percent cited simplified maintenance.

Chuck Mills, Director of IT with Maryland Legal Aid, a 300-employee organization based in Baltimore, Md., that supports 13 remote locations, says his organization has an initiative in disaster recovery under way that he'd classify as "private cloud," because it involves two locations within his firewall.

"We're going to take one of our county offices and, through virtualization here (in Baltimore) and in that county, make it a disaster recovery site so I can fluidly move applications between the two sites as needed," he says.

Although Mills is happy to use hosted services for back-office functions such as human resources and payroll, he's less confident about utilizing public cloud services for his core applications. "I can't take my application and just migrate it out to a cloud vendor," he says. "It's more proprietary once it gets out beyond my firewall, so that is less attractive to me at this point."

Neither Fredrick nor Mills is overly concerned about security issues, but they do say that uptime reliability and performance would be considerations. Mills says a vendor "might be able to guarantee its site but can't guarantee the connection to its site."





The ultimate goal for a business that adopts cloud computing is to build a more flexible and agile computing infrastructure. At Maryland Legal Aid, a not-for-profit organization providing services to the poor at 13 offices scattered across the state, cloud computing is ushering in a new era of efficiency and productivity. In 2009, the organization began shifting to virtualization and a cloud-based approach in order to build a more robust disaster recovery infrastructure. “It provides us with greater flexibility,” says Chuck Mills, Director of IT.

Instead of simply duplicating and mirroring the systems residing in its headquarters in Baltimore, Legal Aid operates a virtualized internal cloud-based environment. This allows it to balance computing loads and boost flexibility in the event of a disaster. “We’re able to create resource pools across the WAN,” Mills explains. The initiative has helped the organization continue with an existing 12 servers rather than expanding to the 24 that would have been needed to operate identical data centers. Server consolidation—along a separate cloud that syncs data on mobile devices—has helped Legal Aid stretch tight resources.

Application Deployment Virtualization Strategies Roundtable

By Invitation Only

Application Deployment and Management Made Easy

As a valued VMware customer, please join us for an interactive session focusing on one of the fastest growing virtualization technologies in the VMware product portfolio, **ThinApp**. As an agentless, 100% user-mode, zero-infrastructure technology, ThinApp resolves application packaging, deployment, update and harvest problems in unique and compelling ways.

This highly interactive agenda will **begin with an introduction to application virtualization and VMware ThinApp 4**. We will include a **product demo**, highlighting many of ThinApp's unique application management properties. Attendees are invited to participate in an **interactive session with other customers** to learn how enterprises are using VMware virtualization to better enable and manage their applications environment. VMware Solution Specialists and Engineering will be onsite to **discuss your particular application requirements** as well as address any and all questions.

In addition to the VMware ThinApp and account teams, RennerBrown, Professional Services Consulting with expertise in desktop infrastructure will be joining us for the discussion. RennerBrown has years of experience with application virtualization that has afforded them a unique perspective in the market space. RennerBrown will be available to follow-up, offering real-world advice on the application virtualization market while providing advanced techniques in application virtualization packaging process.

Existing customers from local Commercial Entities and Public Sector, including Maryland Legal Aid, will be on hand to share their experiences with ThinApp Application Virtualization technologies.

 [RSVP Now](#)

Application Deployment and Management Made Easy

Date:
December 4, 2008

Time:
11:00am - 1:30pm ET

Location:
[EMC Office](#)
[Columbia, MD](#)
8820 Columbia 100
Pkwy
2nd Floor
Columbia, MD
443.367.5300

Annapolis Room

Questions?
Please email
[Jenny Jarrad](#)

 [RSVP Now](#)

This is technology-based discussion. Seating is limited, so please RSVP today – *advance registration is necessary.*



CHUCK MILLS

Director of IT, Maryland Legal Aid, 300 employees

Application Virtualization
with
VMware ThinApp™

Saving
with
VMware View 4
Desktop Virtualization

Affordable Business Continuity
for
Small and Medium Businesses

Resources:

VMware

<http://www.vmware.com/virtualization/what-is-virtualization.html>

Xensource

<http://www.citrix.com/lang/English/ps2/segments/index.asp>

Parallels

<http://www.parallels.com/solutions/>

Microsoft (Hyper-V)

<http://www.microsoft.com/windowsserver2008/en/us/hyperv-overview.aspx>

My Contact Information

Chuck Mills

cmills@mdlabor.org

410-951-7651

Questions?

Thank you to everyone who attended this session!



P2V Checklist:

Server Name: _____

P2V Pre- Migration Check List

Verify local admin access to server is available

Collect hard drive/ cdrom size and drive letter information

Collect networking information and NIC adapter name

P2V Post- Migration Check List

Add memory

Add one CPU

Add correct number of Network Adapters

Configure Network Adapters with correct VLAN

Verify all Network Adapters will NOT connect when booted up

Add the hard drive(s) with correct size and scsi controller

Windows 2003 Servers - LsiLogic controller

Windows 2000 Servers - BusLogic controller

Set VMware HA priority

Sign and return build sheet

Technician Signature: _____

