Microsoft® System Center

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DEPLOYING WINDOWS 7

CUSTOMIZING MDT 2010 FOR ZERO-TOUCH INSTALLATIONS (ZTI)

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Introduction

- This will not be a presentation on Windows 7, but does leverage many of the great features provided through Windows 7.
- What we are going to discuss:
  - Imaging strategies and technologies
  - Deployment strategies
  - How to manage image shares
  - How to manage drivers, updates, and applications
  - How to leverage MDT 2010 in your environment today will leveraging your existing systems and processes already in place.

- What , unfortunately won't get covered:
  - Planning your project
  - The tools for evaluating your environment for Windows 7 or Office 2007
  - ConfigMgr, App-V, Med-V, or other technical features of Windows 7
  - The economy, politics, religion, or price of chickens in Arizona ☺

Where are you at now?

- Some initial questions:
  - What are you using to deploy?
  - How many already have automated builds from start to finish?
  - How much of that is highly customized only for the image you have now?
  - How many have 5 images, 10 images, more?
  - How do you determine another image is needed from the ones you already have?
  - How many are looking at deploying Windows 7 yet?

Why planning for Windows 7 is important

- While the need for a proper project to evaluate your environment, plan the migration of user data and settings, work on compatibility, and deploy Windows 7 cannot be stressed enough…

- There are some facts to realize:

  - We all know that requests for new OS's will come before we are ready for them

  - Windows 7 will find its way into our environments anyways

  - We rarely have enough time to fix what we have

  - Yet, we must be agile to the business needs

  - We will have software and user needs that are incompatible

  - We paid for it (if you have SA or EA), we might as well make our jobs easier

Planning your Deployment

- You must do your homework, poor planning will bite you later
- Windows 7 vs. XP, vs. Vista
    - Virtualized XP (Windows XP Mode)
    - Easier BitLocker implementation
    - Easier state migration
    - More hardware support
    - Better Application Compatibility
- Identify key wins
    - Not everyone needs to go at the same time
    - Put your problem app/users last in the migration
- Training
    - New OS and interface – Many users have Vista at home and are now used to it.
    - Make sure support staff understands new OS and framework

I DIDN'T DO IT!

Project Management – Help through DDPS

- Deployment guidance is based on proper deployment processes and workflows
- Basis for Microsoft Deployment Tools – Focus on MDT and Solution Accelerators
  - Proper process makes changes easier to implement in future
  - Tools are not a substitute for good process.
  - Should enhance and help enforce.
  - Enables automation.
- You may have paid training for this available through your SA/EA agreement for DDPS

Process

Operate

Deploy

Build

Plan
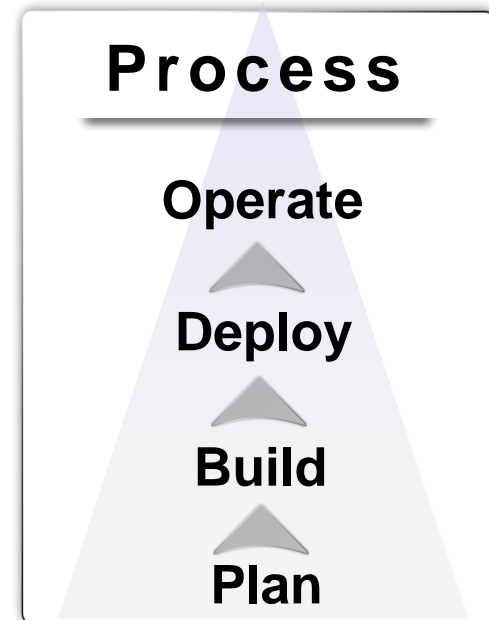
From the trenches

- Through DDPS engagements I see…
  - Technology not the difficulty
  - IT doesn't have a firm grip of what they have deployed
  - The "Business" doesn't know how to engage IT
    - Support
    - New requests
    - Project Management and priority
  - Not enough time or resources to develop solution beyond initial rollout. If not implemented correctly at the onset, there never seems to be enough time to finish it.
  - Many engagements are rip out and put in new, not because a solution wasn't good, but because it wasn't implemented properly

How can you prevent this…

Start using MDT Tools

MDT can be stop gap while implementing a ConfigMgr OSD solution

Based on proper process and Core Framework for ConfigMgr OSD.

- Very flexible
- Extensively customizable
- Does not require full infrastructure support
- Scalable to very distributed model
- Industry standards in place for many years from XP, Vista, and now Win 7

What is MDT 2010

- Microsoft Deployment Toolkit (current version 2010)
- Tool to help customize a deployment share for deploying Windows XP and higher.
- Provides OS, application, driver, and task management.
- Free distribution with valid support from Microsoft
- Community support as well as ability to have direct interaction with the authors/developers
- Started from BDD 2007 (SMS 3.0 OSD)
- Integration into WDS and ConfigMgr
- Leverages existing free imaging technology (Goodbye Ghost!)
  - Vista, Windows 7
  - Server 2008, Server 2008 R2
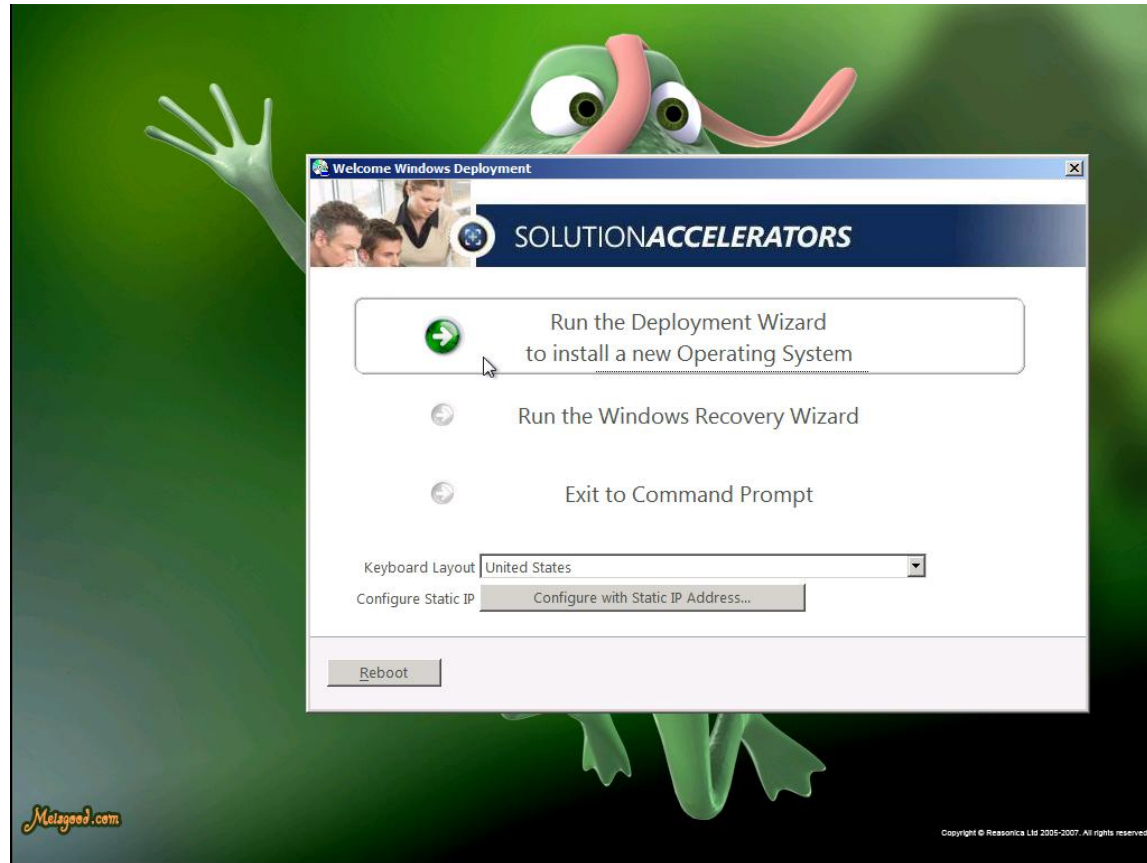
Demo

Kick Off a new deployment of Windows Vista with Office 2003

If this is a System Center User Group, why are we not talking about ConfigMgr OSD?

- ConfigMgr OSD is based on MDT

- ConfigMgr is the highly engineered solution with expectation of minimal changes

- MDT allows for quick deployment environment while you work out the kinks for ConfigMgr

  – Lets you leverage bootable media (PXE, CD, or USB) to start the process.

  – Great for building base images for capture

  – Minimal infrastructure requirements (sqlexpress, file share)

  – Highly scalable, very extensible,

- ConfigMgr is not designed for Lite-Touch, MDT enables wizards for technician decisions at image time.

- You may have limits for SMS / ConfigMgr upgrade timeline or resources

Conventions

- Image Types
  - Thick – great for quick and dirty – minimal atomization for customization. One-offs
  - Thin – great for quick imaging, need extensive modifications after installation. Excellent in highly engineered/automated environment
  - Hybrid – What many use
- Image Deployment
  - NEW – no data or settings (state) to save or migrate
  - REFRESH – same computer, state to migrate
  - REPLACE – new computer, state migrated from previous computer
  - UPGRADE – in-place upgrade to existing computer, state stays same
- Offline Servicing
  - Editing an image while not loaded to a partition or booted
- LTI
  - Lite-Touch Installation – kicked off manually and user answers wizard questions
- ZTI
  - Zero-Touch Installation – kicked off automatically, no prompts

Technologies and Tools

- WIM
  - Image standard created for BDD 2007
  - Natively used for Vista (or higher) DVD
  - Very high compression rate, multiple images in same file
- IMAGEX.EXE
  - Tool used to capture or apply WIM
- DISM.EXE
  - Tool used to make offline edits to WIM
  - Apply updates, install drivers, install features
  - Scriptable – Automate updating of your image library
- WAIK 2.0
  - Windows Automated Installation Toolkit
  - Used to edit Vista and higher unattended installations
- USMT 4.0
  - User State Migration Tools
  - Supports hardlink migration
- WMI Administrative Tools
  - WMI CIM Studio
  - WMI Object Browser
  - http://www.microsoft.com/downloads/details.aspx?familyid=6430F853-1120-48DB-8CC5-F2ABDC3ED314&displaylang=en

My Lab - Description of the lab used for this session

- MDT Server
  - Server 2008 x64, AD, DNS, DHCP, NAP, IIS, CA
  - SQL 2005 SP3, ConfigMgr R2 SP2, WSUS 3.0 SP2, MDT 2010, WAIK 2.0
  - 3GB RAM, 2-125GB VHD, 2 NIC
- Vista_Client
  - Vista x86 with Office 2003
  - Refresh task to Win 7 and Office 2007 (use state backup)
- Win7_NEW
  - New deployment with options for technicians
  - Win7 and chosen software
- Win7_Reference
  - Win7 installation with updates and Office and apps
  - Capture task sequence
- Win7_Fail
  - Win7 that failed for various reasons

- Host Machine
  - HP Laptop
  - Windows 7 x64/Windows 2008 with Hyper-V dual boot
  - 8GB RAM, 2-160GB SATA, 1-500GB eSATA, 1-500GB USB
  - VMware Workstation 6.5 x64 (used for x64 guests and Linux for labs)

MDT 2010 - Basics

- Applications
  - Organize them like you do in ConfigMgr
  - You can create applications the use your ConfigMgr DP folders
- Patches
  - Structure is important for limiting access for task sequences
- Operating Systems
  - Organize similar to Applications – keep in mind any needs for filtering
- Drivers
  - More on this later
- Task Sequences (TS)
  - If LTI, structure to make sense for your technicians
  - Copy and paste steps from one TS to another

… On the surface this is easy to implement …
Let's go further

Managing Shares

- You can load multiple shares in the console from separate servers and sources
- Shares can be treated as deployment/software management processes
  - Build -> Test -> Prod
- Create custom shares for special needs
  - Servers vs desktops
  - Security/Compliance
- Multiple users can work on the same share at the same time
  *Some restrictions apply
- Removable Media
  - Shares can be build to be distributed through removable media
    - DVD
    - USB

Managing Patches

- Task Sequence applies patches during setup (offline)
- Important to note that some patches cannot be installed offline
  - Service packs
- Avoid mass upload of patches into share – harder to troubleshoot
- Offline servicing of patches takes longer
- Window Update can be applied after image boot up through TS
- Troubleshooting tips
  - Win7 – Panther folder
  - MININT - OSDLogs

Managing Drivers

- Different strategies based on your needs
  - Forced installation of specific drivers
  - OK with auto choosing best driver
  - Example 1
  - Example 2
  - Drivers can also be specifically installed through task sequences
    - Example 3 – Windows 7 x86 install to new Lenovo T500

- Intel Storage Matrix driver
  - new version just released – fixes iastor.sys x64 issue
  - Old versions
    - Import each version separately and disable unsupported version
    - Make sure that you DO NOT HAVE ANY OTHER VERSIONS in the drivers from other manufacturers (Dell)

- Figure out your driver management here to implement in ConfigMgr later
  - Much easier to add and delete drivers here than in ConfigMgr

Customizing

- Selection Profiles
  - Selection profiles allow you to limit content based on folder structure
  - Different selection profile for different uses
  - Organize with prefixes for easier management
- Database
  - Extends automation
  - Leverage other datasources to evaluate and perform functions
  - Configurations here can be leveraged in ConfigMgr OSD
- WMI, Registry, File search, Conditions
  - When executing against a running OS, you ca query the machine for any number of parameters to qualify a step in a TS
    - Leverage WMI in WinPE or OS – specific hardware drivers, applications, shares, ConfigMgr DPs
    - Leverage registry search – qualify for app patch installs, drivers,

Database - Functions

- Computers, Roles, Location, and Make/Model have the following functions available in their configs.
    - Details
        - assign custom values for properties used by scripts
    - Applications
        - Assign specific apps
    - ConfigMgr Packages
        - Assign specific ConfigMgr packages
            - xxx00001:<program name>
    - Administrators
        - Assign admins (maybe for deployment only?)
    - Roles
        - Preconfigured sets of the details, apps, packages, and administrators

Database – Configuration Settings

- Computers
  - Assign specific computer via MAC address, Asset tag, UUID, and/or Serial number
    - Similar to unknown computer association in ConfigMgr
- Location
  - Use gateways to determine location
    - examples
- Make and Model
  - Use to determine what your building and assign functions or roles based on that
    - examples
- Roles
  - Leverage roles to create specialized builds
    - examples

CustomSettings.ini

- Core for your customizations

- Only one per share

- Assigns values to script properties

- Provides Wizard answers

- Ying to the Yang of task sequences

- Must understand INI framework – similar to batch GOTO for flow

  - "Priority" property defines the order of sections to process.

    - "default" section should always be last so that you can override values.

    - Each section assigns a property to be used later in the script.

      - Can be section name or specifically assigned in the section

- The following slide is a list of the wizards, CustomSettings properties to set "NO" and "YES" to, as well as the script properties that will need defined.

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Skip this wizard page	Using this property	Configure these properties
Administrator Password	SkipAdminPassword	• AdminPassword
Welcome to the Windows Deployment Wizard	SkipBDDWelcome	
Choose a migration type	SkipDeploymentType	• DeploymentType
Configure the computer name	SkipComputerName	• OSDComputerName
Configure the target partition	SkipDestinationDisk	• DestinationDisk
		• DestinationPartition
Join the computer to a domain or workgroup	SkipDomainMembership	• JoinWorkgroup
		or
		• JoinDomain
		• DomainAdmin
		• DomainAdminDomain
		• DomainAdminPassword
Language and other preferences	SkipLocaleSelection	• KeyboardLocale
		• UserLocale
		• UILanguage
Operating system deployment completed successfully	SkipFinalSummary	
Operating system deployment did not complete successfully	SkipFinalSummary	
Packages	SkipPackageDisplay	• LanguagePacks
Ready to begin	SkipSummary	
Select a task sequence to execute on this computer	SkipBuild, SkipTaskSequence	• TaskSequenceID
		• BuildID
Select one or more applications to install	SkipApplications	• Applications
	SkipAppsOnUpgrade	
Set the Time Zone	SkipTimeZone	• TimeZone
		or
		• TimeZoneName
Specify credentials for connecting to network shares	Skipped by providing properties in next column	• UserID
		• UserDomain
		• UserPassword
Specify the BitLocker configuration	SkipBitLocker	• BDEDriveLetter
		• BDEDriveSize
		• BDEInstall
		• BDEInstallSuppress
		• BDERecoveryKey
		• TPMOwnerPassword
		• OSDBitLockerStartupKeyDrive
		• OSDBitLockerWaitForEncryption
Specify the product key needed to install this operating system	SkipProductKey	• ProductKey
		or
		• OverrideProductKey
Specify where to save a complete computer backup	SkipComputerBackup	• BackupDir
		• BackupShare
		• ComputerBackupLocation
Specify where to save your data and settings	SkipUserData	• UDDir
		• UDShare
		• UserDataLocation
Specify whether to capture an image	SkipCapture	• ComputerBackupLocation
Specify whether to restore user data	SkipUserData	• UDDir
		• UDShare
		• UserDataLocation

Making your deployment ZTI

- Example of fully automated deployment share
  - ProdDeploy$
    - Customsettings.ini

- Example of role based automation
 - TestDeploy$
    - Roles
    - Customsettings.ini

Tweaks

- If executing BDD_Autorun.wsf or LiteTouch.wsf, you need to make a script edit to bypass multiple connections no network share error
  - ZTIUtility.vbs
  - http://blogs.technet.com/msdeployment/archive/2009/09/18/fix-for-multiple-connections-to-a-server-or-shared-resource-by-the-same-user-using-more-than-one-user-name-are-not-allowed-problem-with-mdt-2010.aspx

- Adding stored procedure for Dynamic Software Installs
  - Stored procedure
  - Script to add row linking products

Managing Multiple Shares
Testing your deploys

- Boot to multiple shares without creating boot disks
  - LocationServer.xml
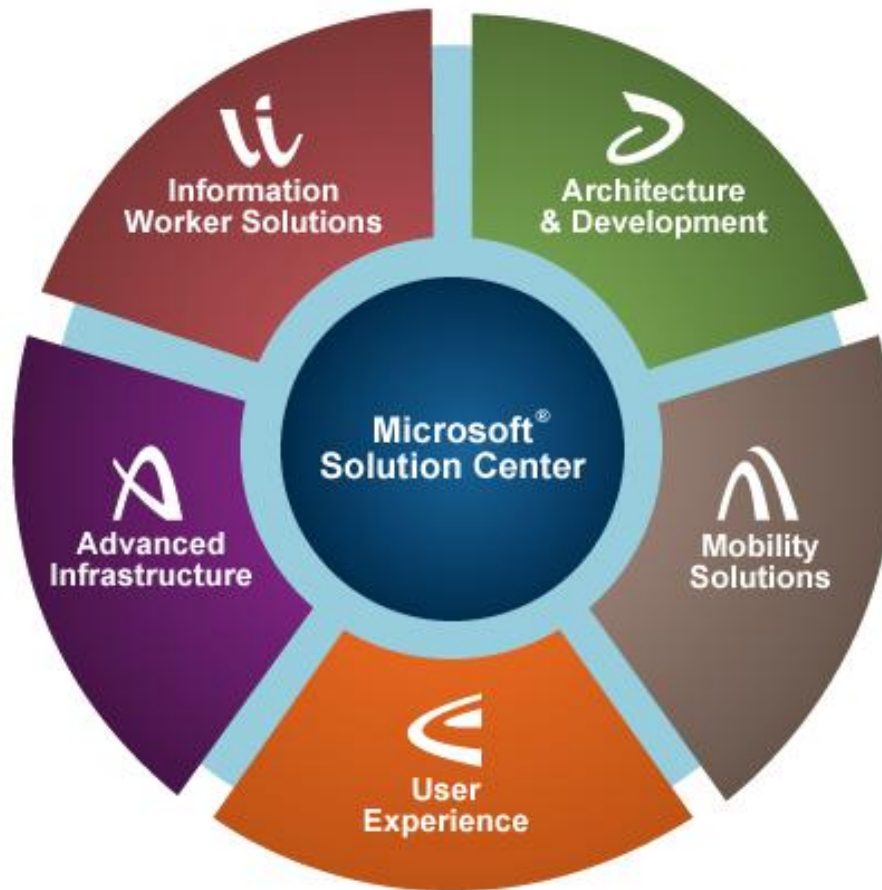 - Boot.ini
  - Add Files to Boot Media
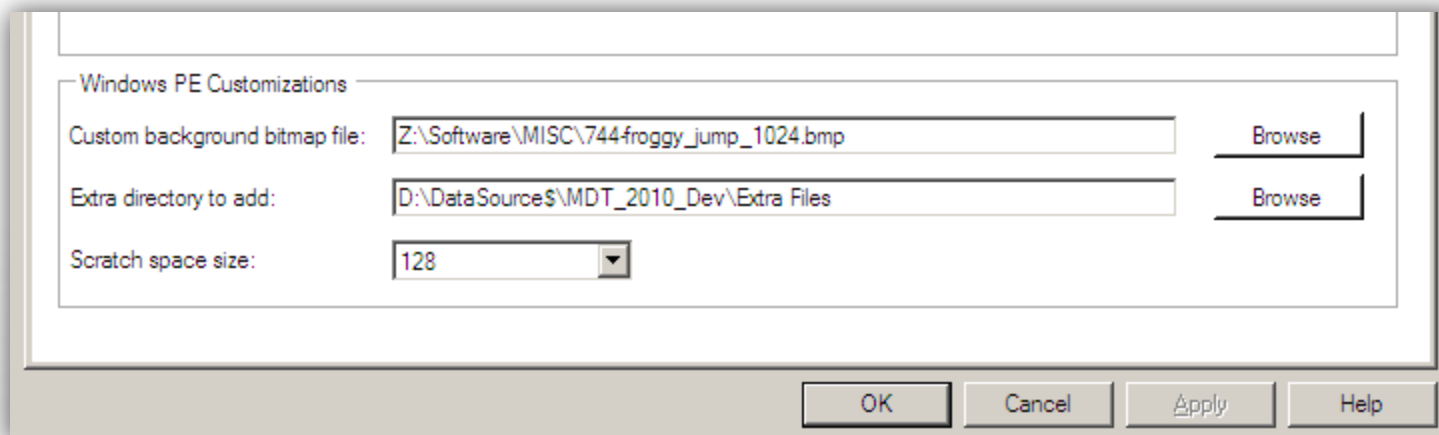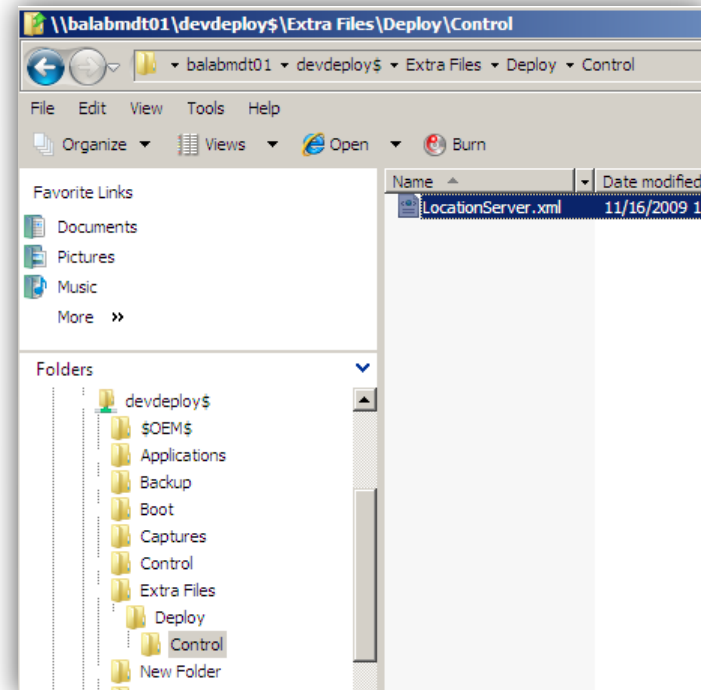
Troubleshooting

- Make sure to redirect your logs
  - Logs are deleted from local computer once summary wizard closes
  - Get access to logs during the windows setup by pressing F8 to open command window
- Database Connections
  - Make sure that the database name and share is correct and exists
  - SQL Timeout errors – communication
  - SQL login failures for 'NT AUTHORITY/ANONYMOUS USER' – named pipes
  - Make sure named-pipes is enabled in the SQL network configuration

Additional Resources

- The Deployment Guys Blog
  - http://blogs.technet.com/deploymentguys/
- Michael Niehaus Blog
  - http://Blogs.technet.com/mniehaus/
- Windows Team Blog
  - http://windowsteamblog.com/blogs/springboard/archive/2009/11/08/part-4-choosing-and-image-strategy-and-building-windows-7-system-images.aspx
- MDT 2010
  - http://technet.microsoft.com/en-us/solutionaccelerators/dd407791.aspx
- MDT Wizard Editor
  - http://mdtwizardeditor.codeplex.com
- WMI Administrative Tools
  - http://www.microsoft.com/downloads/details.aspx?familyid=6430F853-1120-48DB-8CC5-F2ABDC3ED314&displaylang=en
- DeployWindows.Net
  - http://deploywindows.net/
- myITForum.com
  - http://www.myitform.com

Who is Bennett Adelson?

➢ Founded in 1996, Headquartered in Cleveland, Ohio

➢ Nearly 70 employees throughout the US

➢ Gold Certified Microsoft Partner

➢ Member of the Microsoft Partner Advisory Council

➢ Practice Directors comprised of Industry Leaders and Subject Matter Experts
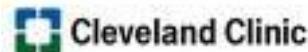
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