Introduction

- Name
- Title/function
- Job responsibility
- Your expectations for this workshop
Facilities

- Class hours
  - 9:00 to 17:00
- Restrooms
- Meals
  - Tea’s 10:30 & 15:00
  - Lunch 12:30
- Phones
- Smoking
Course Outline

• Module 1: MAP
• Module 2: ACT
• Module 3: USMT
• Module 4: App-V
• Module 5: MED-V
• Module 6: RemoteFX/VDI/RDS
• Module 7: MDT
• Module 8: SCCM & SCUP
What Is MAP?

- Agentless inventory and assessment tool
- Provides readiness assessments for
  - Windows 7, Office 2010, Internet Explorer
  - Windows Server 2008 R2, Hyper-V
  - Windows Azure Platform
- Generates customizable proposals and reports
- It is free!
Client Migration Opportunity

- Customers want to migrate from earlier versions of Windows Server, Window Workstation and Office
- Environment consists of multiple versions of IE, 3rd party web browsers, and add-ons
- Needs readiness assessment to help plan migration
Customers Need to Know…

- Which PCs can run Windows 7 and Microsoft Office 2010?
- What hardware upgrades are needed for those PCs that can’t run Windows 7 or Microsoft Office?
- Are they running Internet Explorer browsers that are compatible with Windows 7?
- What browser add-ons they are running that have dependencies on older versions of Internet Explorer?
How MAP Can Help

- Fast, scalable and agentless inventory
- Auto-generate actionable assessments and proposals
- Plan for multiple Microsoft products from one tool
- Simplify software license management and compliance processes
How MAP Works

1. Inventory customer environment

2. Review results

3. Generate customizable proposals and reports
Windows 7 Migration Assessment

- Which PCs can run Windows 7?
- How many machines need hardware upgrades?
- Do the machines have compatible device drivers?
Internet Explorer Migration Assessment

- Identify Internet Explorer dependencies for upgrading to Windows 7
- What web browsers are currently deployed?
- What ActiveX controls and IE add-ons are commonly used?
Office 2010 Migration Assessment

- What versions of Office are currently running?
- Which machines can run Office 2010?
- Which machines require upgrades?
New Features in MAP 6.0

- Internet Explorer Migration Assessment
- Windows Azure Platform Readiness
- Heterogeneous Database Inventory and Reporting
- Enhanced Server Consolidation Capabilities for Hyper-V
- Analyze your portfolio of applications for a move to the Windows Azure Platform
- Accelerate planning to private cloud with Hyper-V Cloud Fast Track Onboarding
- Identify migration opportunities with enhanced heterogeneous server environment inventory
- Assess your client environment for Office 365 readiness
- Discover Oracle database schemas for migration to SQL Server
Use MAP to inventory following technologies:

- Windows 7
- Windows Vista
- Windows XP Professional
- Office 2010 and previous versions
- Windows Server 2008 or Windows Server 2008 R2
- Windows Server 2003 or Windows Server 2003 R2
- Windows 2000 Professional or Windows 2000 Server
- Windows Internet Explorer 9 and previous versions
- VMware ESX, ESXi, vSphere, vCenter, Server
- Linux variants
- LAMP application stack discovery
- SQL Server 2008
- SQL Server 2008 R2
- MySQL
- Oracle
- Sybase
What Are Common Application Compatibility Problems?

Compatibility problems relate to the following areas:

- Setup and Installation
- User Account Control
- Kernel-mode drivers
- Windows Resource Protection
- Internet Explorer 7 and 8 Protected mode
- Internet Explorer 8 User Agent String
- 64-bit architecture
- Windows Filtering Platform API
- Deprecated components
Process for Resolving Application Compatibility Issues

**Inventory**
- Identify the clients to inventory
- Inventory applications
- Gather application compatibility

**Analyze**
- Categorize and prioritize application status
- Review updated compatibility information
- Identify mitigation strategies

**Mitigate**
- Create test environment
- Test mitigation strategies
- Create application mitigation packages
- Deploy application mitigation fixes
What Is the Application Compatibility Toolkit?

An application inventory and analysis solution used to inventory, prioritize, and mitigate application compatibility issues.

Benefits of using ACT

- Inventory and analyze your portfolio of applications, Web sites, and computers.
- Analyze the impact to operating system deployments and Windows updates.
- Prioritize and categorize application and computer inventory.
- Synchronize compatibility information from the ACT Community.
# ACT 5.6 System Requirements

## Supported Operating Systems:
- Windows 7
- Windows Vista
- Windows Vista SP2
- Windows XP with SP2
- Windows XP with SP3
- Windows Server 2003 with SP2
- Windows Server 2008 R2

## Supported Database Components:
- SQL Server 2008
- SQL Server 2008 Express
- SQL Server 2005
- SQL Server 2005 Express

ACT requires Microsoft .NET 2.0 or more recent versions
Features of ACT 5.6

ACT includes the following features:

- Application Compatibility Manager
- Compatibility Administrator
- Mitigation and Development Tools
  - Setup Analysis Tool
  - Internet Explorer Compatibility Test Tool
  - Standard User Analyzer (SUA)
ACT 5.5 Architecture Overview

ACT 5.6 Supported Topologies

- **Distributed ACT Log Processing Service (LPS), ACT Log Processing Share (LPS Share), and ACT Database (ACT DB)**

- **Distributed Logging with Rollup to Central LPS Share**

- **Distributed LPS and ACT DB**

- **Consolidated Server**
Compatibility evaluators specific for the Windows 7 operating system include:

- **Inventory Collector:**
  - Examines each of your organization’s computers that has a data collection package installed.

- **User Account Control Compatibility Evaluator (UACCE):**
  - Identifies potential compatibility issues due to an application running under a Protected Administrator or Standard User account on the Windows 7 operating system.

- **Update Compatibility Evaluator (UCE):**
  - Identifies the potential impact from a new Windows update.
How Application Compatibility Manager Helps in Collecting and Analyzing Application Data

1. Collect
   - Inventory your applications
   - Gather application compatibility data via the compatibility evaluators

2. Analyze
   - Rationalize, categorize, and prioritize your applications
   - Synchronize with the Microsoft Compatibility Exchange

3. Test and Mitigate
   - Test and track your application status
   - Create and package your compatibility issue solutions

Steps to Evaluate Your Application Compatibility Using the Application Compatibility Toolkit

- Collect - Create your data collection package. Create a data collection package, selecting the appropriate compatibility evaluators, to search for potential compatibility issues. Deploy your data collection packages using a custom script, Group Policy, or any other deployment technologies.

- Analyze - Rationalize, categorize, prioritize, and filter your compatibility data. Organize and group your applications, filter collected data, and analyze all compatibility issues in customized reports. Synchronize with the Microsoft Compatibility Exchange and see the assessments provided by Microsoft, Independent software vendors (ISVs), and the ACT Community.

- Test and Mitigate - Use the test tools to understand compatibility issues and develop a plan for mitigation. Use developer and tester tools provided with ACT to further understand your compatibility issues and track your deployments. Create and test compatibility shims using the Compatibility Administrator.
Using Application Compatibility Manager reports, you can analyze your compatibility data.

Using the Application Compatibility Manager, you can create data-collection packages (DCPs) to gather your installed software, hardware, and device information.

Using the Preferences tab, you can join or leave the ACT Community and Customer Experience Program, and receive notifications when there is an update to ACT.

Using the Settings tab, you can create and modify your database and log processing settings.

Configuring and Using ACM
Configuring and Using ACM

ACM Configuration Options

- **Database Settings**
  - SQL Server: TFRINK-PC\SQLEXPRESS
  - Database: ACTDB

- **Log Processing Settings**
  - This computer is configured as a Log Processing Service

- **Log Processing Service Account**
  - Local System Account
  - User Account:
    - User name: [blank]
    - Password: [blank]
    - Domain: NORTHAMERICA

- **Log Share**
  - Path: [blank]
  - Share as: [blank]

- **Community Settings**
  - Yes, I want to join the ACT Community
  - Note: Your ACT Community identity does not appear to Microsoft or to anyone else in the community.

- **Privacy Options**
  - Join the ACT Customer Experience Program
  - What is this?

- **Update Settings**
  - Notify me when a newer version of ACT is available (recommended).
Using the Standard User Analyzer

The Standard User Analyzer (SUA) is used to test the Application Compatibility Manager for known user account control (UAC) issues.

- Monitors API calls to detect compatibility issues related to the Windows 7 UAC feature.
  - Applies the recommended fixes, and then exports them to a Microsoft Windows® Installer (.msi) file for deployment to all your organization's computers.
- Monitors and reports many issues, including issues related to file, registry keys, .ini files, tokens, privileges, name space, and processes.
Using the Compatibility Administrator Tool

Helps resolve application compatibility issues by:

- Providing built-in compatibility fixes
- Enabling the creation of customized compatibility fixes
- Providing a query tool that can search local computers for installed fixes
Current Solution User State Migration

• Do you force all user data and application settings to the user profile?
• Do you have roaming profiles?
• How do you securely migrate users’ files, desktops, and application settings when moving to a new desktop?
• Do you have a repository of USMT control files?
• How do you develop consistent, documented processes for transferring user settings?
• What impact will user state migration have on end users?
• How do you transfer user settings without tying up IT staff in desk-side visits?
• How many next-day issues do you plan for?
Requirements Critical Steps

• Planning Phase
  − How will you complete an application inventory? (App compat team?)
  − Which scenarios will require USMT? (new, refresh, replace)
  − Which applications and roles are in scope?
  − Who will prepare the migration plan?

• Developing Phase
  − Who will develop the control files?
  − Who will migrate previous version control files?

• Stabilizing Phase
  − Who will test USMT control files?
  − Who will update deployment servers with tested control files? What servers will be used?

• Deploying Phase
  − Who will approve USMT team hand-off to Deployment feature team?
Network Requirements

- Network infrastructure implications
  - Server storage requirements
  - Network bandwidth requirements
  - Number of users at one time
  - Average data per user
  - Average Network Utilization
Planning for USMT

• Identify key items
  – Settings
  – Files/folders
  – File types
  – Application configuration

• Identify desktop changes
  – Change in the number of partitions?
  – Changes to My Documents?

• Plan for a managed desktop
  – Restrict users to My Documents?
  – Encrypted files? Recovery?
  – Backup?
Application Migration Considerations

- Is the destination version of the application newer than the source version?
- Is it appropriate to migrate these settings to the new version (will it work)?
- Do the settings need to be moved or altered?
- Can the first run process fool the application into thinking it has run already? Does this work or break the application?
User State Migration Tool – v4.0
New with Windows 7 WAIK

• Now included within the Windows 7 WAIK – no longer a separate download
• Hard-link Migration
  - Enables local file migration without copying or moving files
  - Processes migration jobs in third of the time or less
• Offline User State Capture
  - Capture during Windows PE phase to improve speed
• XML Helper Tools to Target File Attributes
• Volume Shadow Copy Support
• Improved Document Discovery
User State Migration Tool – v4.0
What's new in Version 4

- Hard-link migration store
- Improved Space estimation
- Ability to run the ScanState command on an offline Windows image
- Integration with Microsoft System Center Configuration Manager (SCCM) and the Microsoft Deployment Toolkit (MDT)
- Configurable file errors
- New helper functions
- Volume shadow copy support.
- Local group migration
- List files being migrated
- Usmtutils.exe
- New AES encryption options
USMT 4.0 Components

- **Scanstate.exe** – collects files and settings from the source system, compressing them into a migration store (USMT.MIG).
- **Loadstate.exe** – extracts files and settings from a migration store, depositing them on the destination system.
- **.xml control files** – control the USMT migration process.
- **Component manifests** – control the files and settings migrated from Windows Vista/7 systems.
  - Cannot be modified – use Config.xml
- **Downlevel manifests** – control the files and settings migrated from Windows XP systems.
  - Cannot be modified – use Config.xml
ScanState Command's Syntax

```
```

```bash
scanstate \fileservers\migration\mystore
   /i:migapp.xml /i:miguser.xml /o
   /config:config.xml /v:13 /encrypt /key:"mykey"
```
Loadstate Command's Syntax


loadstate \fileserv\migration\mystore
/i:migapp.xml /i:miguser.xml /v:13 /decrypt /key:"mykey"
User State Migration Process

ScanState

MigApp.xml
MigUser.xml
MigDocs.xml
Config.xml
Custom.xml
Custom.xml

LoadState

Component Manifest
Downlevel Manifest

USMT Store

Component Manifest
Downlevel Manifest
USMT 4.0 Components - XML Control Files

- MigApp.xml
  - Application settings
  - Template already contains many common applications
- MigUser.xml
  - Migrate user folders, files, and file types to computers running Windows Vista or Windows 7
  - This file does not contain rules that migrates specific user accounts
- MigDocs.xml
  - Migrate all user folders and files
  - It does not find and migrate any application data, program files, or any files in the Windows directory
- Config.xml
  - Migrates Vista Component settings
  - Created with the /genconfig option
- Custom.xml
  - For custom rules
  - Example usage – custom Line Of Business applications
Sample MigApp.xml

```xml
<!-- WinZip -->
<component context="User" type="Application">
  <displayName _locID="migapp.winzip">WinZip</displayName>
  <environment>
    <variable name="HklmWowSoftware">
      <text>HKLM\Software</text>
    </variable>
    <variable name="WinZip8or9or10Exe">
      <script>MigXmlHelper.GetStringContent("Registry","%HklmWowSoftware%\Microsoft\Windows\CurrentVersion\App Paths\winzip32.exe []")</script>
    </variable>
  </environment>
  <role role="Settings">
    <dectects>
      <detect>
        <condition>MigXmlHelper.DoesObjectExist("Registry","%HklmWowSoftware%\Nico Mak Computing\WinZip\WinIni [win32_version]")</condition>
      </detect>
    </detects>
    <rules>
      <destinationCleanup>
        <objectSet>
          <pattern type="Registry">HKCU\Software\Nico Mak Computing\WinZip\fm* [*]</pattern>
          <pattern type="Registry">HKCU\Software\Nico Mak Computing\WinZip\ListView* [*]</pattern>
          <pattern type="Registry">HKCU\Software\Nico Mak Computing\WinZip\ToolBar* [*]</pattern>
          <pattern type="Registry">HKCU\Software\Nico Mak Computing\WinZip\WIZARD* [*]</pattern>
        </objectSet>
      </destinationCleanup>
    </rules>
  </role>
</component>
```
- <component displayname="Office 2000" migrate="yes">
  ID="Container|http://www.microsoft.com/migration/1.0/migxmlext/migapp/Office 2000/container|||"/>
- <component displayname="Microsoft Outlook" migrate="yes">
  ID="Settings|http://www.microsoft.com/migration/1.0/migxmlext/migapp/Office 2000/container/Microsoft Outlook/settings|||"/>
- <component displayname="Office 2000 Common Settings" migrate="yes">
</component>
- <component displayname="Windows Media Player" migrate="no">
  ID="Settings|http://www.microsoft.com/migration/1.0/migxmlext/migapp/Windows Media Player/settings|||"/>
- <component displayname="Windows Movie Maker v2.1" migrate="yes">
  ID="Settings|http://www.microsoft.com/migration/1.0/migxmlext/migapp/Windows Movie Maker v2.1/settings|||"/>
</component>
</Applications>
- <WindowsComponents>
  - <component displayname="Accessibility" migrate="yes" ID="Container|accessibility|||">
  - <component displayname="Accessibility Settings" migrate="yes" ID="Container|accessibility\accessibility\settings\settings|||">
    - <component displayname="Microsoft-Windows-accessibilitycpl-DL" migrate="yes">
      ID="Settings|http://www.microsoft.com/migration/1.0/migxmlext/cmi/Microsoft-Windows-accessibilitycpl-DL_0.0.0.0_*_neutral/Microsoft-Windows-accessibilitycpl-DL/settings|0.0.0.0|||"/>
    </component>
  </component>
  </component>
</WindowsComponents>
Exclude MP3 files during the migration
USMT Settings

• E-mail settings
  − Microsoft Office Outlook® messaging and collaboration client
  − Microsoft Office Outlook Express
  − Mail profile(s)
  − Personal store
  − Address Book
• Microsoft Internet Explorer
  − Proxies
  − Favorites/home page
  − Home page/cookies*

• Environment
  − Desktop properties
  − Folder options
  − Taskbar settings
  − Accessibility
  − Fonts
• Network resources
  − Mapped drives*
  − Network printers*
USMT Extensibility

- Configuration is defined by multiple configuration files
- Functionality can be extended by customizing files
- The default configuration files focus on:
  - Key shell settings
  - Mail/Internet connectivity settings
  - User data
  - Very limited application settings
  - The user’s registry settings
USMT High Level Usage

- Execute Scanstate /genconfig:Config.xml
- Make desired modifications to Config.xml, MigUser.xml, MigDocs.xml and MigApps.xml
- Execute Scanstate.exe on source computer using xml files as inputs to create the migration store
- Execute Loadstate.exe on destination computer using xml files and migration store as inputs
USMT Command Scenarios

- Create a Config.xml file using the /genconfig option
- Collect user data
- Collect and restore user data using MigUser.xml
- Collect operating system data
- Collect application data
- Encrypt the store
- Examine an uncompressed store
- Look at the logs
- Migrate specific users
- Create a space-estimate file
- Change verbose output
## USMT 4.0 Supported Operating Systems

<table>
<thead>
<tr>
<th>Operating System</th>
<th>ScanState (Source)</th>
<th>LoadState (Destination)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows XP x32/x64</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Windows Vista</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Windows Vista for Itanium-based Systems</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Windows Vista x64 Edition</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Windows 7 x32 Edition</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Windows 7 x64 Edition</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

You can migrate a 32-bit operating system to a 64-bit operating system. However, you cannot migrate 64-bit operating system to a 32-bit operating system. USMT 4.0 does not support any of the Windows Server® operating systems or any of the starter editions for Windows XP, Windows Vista, or Windows 7. In addition, USMT 4.0 only supports migration from the latest service packs for or Windows Vista.
USMT 4.0 and Microsoft Deployment Toolkit Integration

- Customsettings.ini
- Deployment Database
User State Migration tool – v4.0
Lite Touch Installation Integration

Deployment Wizard determines options that will appear on the Lite Touch Installation Wizard
USMT 4.0
User State captured in a Refresh Scenario

- Advertisement Sent ** or MDT executed
- C:\MiniNT folder created
- USMT data copied to C:\MiniNT
- Or Hardlink option in MDT
- WinPE injected into C:\MiniNT
- Boot order modified and system rebooted
- OS Partition is ‘wiped’

MDT or ConfigMgr Server(s)

- SCCM determines Distribution Point (DP) **
- DP/MDT delivers WIM package
- Boot partition restored
- System is rebooted
- Minissetup executes
- Applications installed (OSD/ZTI)
- USMT restores data
- C:\MiniNT is removed

*ZTI only
User State Migration Best Practices

- Scan for viruses prior to running USMT
- Run chkdsk.exe prior to running USMT
- Verify data security
- Migrate files into the smallest possible number of folders on the destination computer
- Create Custom XML files to reduce and reroute User data
User State Migration Best Practices

• Store all user data under the user’s profile
  – in \%userprofile\My Documents
  – or in \%userprofile\Application Data
  – application SMEs should provide input into the feasibility of any data file relocation requirements

• Roaming configuration support with site-based or location-based logon scripts
  – These scripts modify configuration files when computers start and when users log on to them
  – Identify these kinds of applications and exclude or merge them with the USMT scenario to avoid conflicts
USMT 4.0 Troubleshooting

- Examine the Scanstate and Loadstate logs
- Use /nocompress with Scanstate to see the contents of the migration store
- Create a progress log
  - Using the /progress option
- To find the meaning of an error
  - Type: net helpmsg ErrorNumber
  - Search the usmt.chm help file
USMT Progress Logs

• Command-line syntax:
  – /progress:<path\filename>

• Simple output syntax
  – Start LOADSTATE  path
  – <Time>, <Machine ID>, message-specific syntax
  – End LOADSTATE  exitcode bytes-moved

• Heartbeat log every two minutes

• Enables scripting to parse logs and send alerts to monitoring systems such as System Center Operation Manager (OpsMgr)
<table>
<thead>
<tr>
<th>Return code value</th>
<th>Return code</th>
<th>Error message</th>
<th>Troubleshooting, mitigation, workarounds</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>USMT_SUCCESS</td>
<td>Successful run</td>
<td>Not applicable</td>
<td>Success or Cancel</td>
</tr>
<tr>
<td>1</td>
<td>USMT_DISPLAY_HELP</td>
<td>Command line help requested</td>
<td>Not applicable</td>
<td>Success or Cancel</td>
</tr>
<tr>
<td>2</td>
<td>USMT_STATUS_CANCELED</td>
<td>User chose to cancel (such as pressing CTRL+C)</td>
<td>Not applicable</td>
<td>Success or Cancel</td>
</tr>
<tr>
<td>11</td>
<td>USMT_INVALID_PARAMETERS</td>
<td>Undefined or incomplete command line option</td>
<td>Review ScanState log or LoadState log for details about command-line errors.</td>
<td>Invalid Command Lines</td>
</tr>
<tr>
<td>12</td>
<td>USMT_ERROR_OPTION_PARAM_TOO_LARGE</td>
<td>Command line arguments cannot exceed 256 characters</td>
<td>Review ScanState log or LoadState log for details about command-line errors.</td>
<td>Invalid Command Lines</td>
</tr>
<tr>
<td>13</td>
<td>USMT_INIT_LOGFILE_FAILED</td>
<td>Log path argument is invalid for /l</td>
<td>When /l is specified in the ScanState command line, USMT validates the path. Verify that the drive and other information, for example file system characters, are correct.</td>
<td>Invalid Command Lines</td>
</tr>
<tr>
<td>14</td>
<td>USMT_ERROR_USE_LAC</td>
<td>Unable to create a local account because /lac was not specified</td>
<td>When creating local accounts, the command-line options /lac and /lae should be used.</td>
<td>Invalid Command Lines</td>
</tr>
<tr>
<td>26</td>
<td>USMT_INIT_ERROR</td>
<td>Software malfunction or unknown exception</td>
<td>Check all loaded .xml files for errors, common error when using /l to load the Config.xml file.</td>
<td>Setup and Initialzation</td>
</tr>
<tr>
<td>27</td>
<td>USMT_INVALID_STORE_LOCATION</td>
<td>Invalid store path; check the store parameter and/or file system permissions</td>
<td>Make sure that the store path is accessible and that the proper permission levels are set.</td>
<td>Setup and Initialzation</td>
</tr>
<tr>
<td>28</td>
<td>USMT_UNABLE_GET_SCRIPTFILES</td>
<td>Script file is invalid for /i</td>
<td>Check all specified migration .xml files for errors. This is a common error when using /l to load the Config.xml file.</td>
<td>Setup and Initialzation</td>
</tr>
<tr>
<td>29</td>
<td>USMT_FAILED_MIGSTARTUP</td>
<td>Failed to start main processing, look in log for system errors or check the installation</td>
<td>Check the ScanState log file for migration .xml file errors.</td>
<td>Setup and Initialzation</td>
</tr>
<tr>
<td>31</td>
<td>USMT_UNABLE_FINDMIGUNITS</td>
<td>An error occurred during the discover phase; the log should have more specific information</td>
<td>Check the ScanState log file for migration .xml file errors.</td>
<td>Setup and Initialzation</td>
</tr>
<tr>
<td>32</td>
<td>USMT_FAILED_SETMIGRATIONTYPE</td>
<td>An error occurred processing the migration system</td>
<td>Check the ScanState log file for migration .xml file errors, or use online Help by typing /? on the command line.</td>
<td>Setup and Initialzation</td>
</tr>
</tbody>
</table>
# USMT Error codes (cont.)

<table>
<thead>
<tr>
<th>Return code value</th>
<th>Return code</th>
<th>Error message</th>
<th>Troubleshooting, mitigation, workarounds</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>USMT_UNABLE_READKEY</td>
<td>Error accessing the file specified by the /keyfile parameter</td>
<td>Check the ScanState log file for migration .xml file errors, or use online Help by typing /? on the command line.</td>
<td>Setup and Initialization</td>
</tr>
<tr>
<td>34</td>
<td>USMT_ERROR_INSUFFICIENT_RIGHTS</td>
<td>No rights to create user profiles</td>
<td>Log on as Administrator, and run with elevated privileges.</td>
<td>Setup and Initialization</td>
</tr>
<tr>
<td>35</td>
<td>USMT_UNABLE_DELETE_STORE</td>
<td>A store path can't be used because it contains data that could not be overwritten</td>
<td>A migration store could not be deleted. If you are using a hardlink migration store you might have a locked file in it. You should manually delete the store, or use usmutils /rd command to delete the store.</td>
<td>Setup and Initialization</td>
</tr>
<tr>
<td>36</td>
<td>USMT_ERROR_UNSUPPORTED_PLATFORM</td>
<td>Compliance check failure; please check the logs for details</td>
<td>Investigate whether there is an active temporary profile on the system.</td>
<td>Setup and Initialization</td>
</tr>
<tr>
<td>37</td>
<td>USMT_ERROR_NO_INVALID_KEY</td>
<td>The store holds encrypted data but the correct encryption key was not provided</td>
<td>Verify that you have included the correct encryption /key or /keyfile.</td>
<td>Setup and Initialization</td>
</tr>
<tr>
<td>38</td>
<td>USMT_ERROR_CORRUPTED_NOTENCRYPTED_STORE</td>
<td>An error occurred during store access</td>
<td>Review ScanState log or LoadState log for details about command-line errors. Make sure that the store path is accessible and that the proper permission levels are set.</td>
<td>Setup and Initialization</td>
</tr>
<tr>
<td>39</td>
<td>USMT_UNABLE_TO_READ_CONFIG_FILE</td>
<td>File argument is invalid for /config</td>
<td>Check the command line you used to load the Config.xml file. You can use online Help by typing /? on the command line.</td>
<td>Setup and Initialization</td>
</tr>
<tr>
<td>40</td>
<td>USMT_ERROR_UNABLE_CREATE_PROGRESS_LOG</td>
<td>Error writing to the progress log</td>
<td>The Progress log could not be created. Verify that the location is valid and that you have write access.</td>
<td>Setup and Initialization</td>
</tr>
<tr>
<td>41</td>
<td>USMT_PREFLIGHT_FILE_CREATION_FAILED</td>
<td>Can't overwrite existing file</td>
<td>The Progress log could not be created. Verify that the location is valid and that you have write access.</td>
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</tr>
<tr>
<td>61</td>
<td>USMT_MIGRATION_STOPPED_NONFATAL</td>
<td>Processing stopped due to an I/O error</td>
<td>USMT exited but can continue with the /c command-line option, with the optional configurable &lt;ErrorControl&gt; section or by using the /vsc command-line option.</td>
<td>Non-fatal Errors</td>
</tr>
<tr>
<td>71</td>
<td>USMT_INIT_OPERATING_ENVIRONMENT_FAILED</td>
<td>A Windows Win32 API error occurred</td>
<td>Data transfer has begun, and there was an error during the creation of migration store or during the apply phase. Review the ScanState log or LoadState log for details.</td>
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</tr>
<tr>
<td>72</td>
<td>USMT_UNABLE_DOMIGATION</td>
<td>An error occurred in the gather process</td>
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</tr>
</tbody>
</table>
**What it does**
- Creates a package of a single application
- Eliminates software install

**What it is good for**
- Resolve conflicts between applications
- Simplify application delivery and testing

---

**What it does**
- Creates a package with a full OS

**What it is good for**
- Resolve incompatibility between applications and a new OS
- Run two environments on a single PC (e.g. corporate and personal)
App-V 4.6 Infrastructure
App-V 4.6 Overview

- App-V is part of the Microsoft Desktop Optimization Pack (MDOP) for Software Assurance

- Transforms applications into virtualized, network-available services
  - Includes dynamic deployment, update, and support of applications

- Abstracts applications from the operating system
  - Applications run within an isolated, virtual environment
  - Operating system files and registry settings are never changed

- Dynamic, streaming delivery to desktops or RDS servers
  - Only required portion of application is pulled to launch
  - Other application data is pulled transparently when needed by the application
  - At session termination, application settings and profile are saved in a file-based cache that is used for subsequent launches
  - Cached code enables applications to run locally without network connection

- Flexible, centrally managed deployment options
  - Application deployments, patches, updates, and terminations are managed centrally through policy

- Integrates with Microsoft Systems Management Server, SC ConfigMgr, and third-party ESD
App-V 4.6 Features

- Supports sequence and execution for 32-bit and 64-bit applications on 32-bit and 64-bit Windows client and server operating systems
  - Windows XP, Windows Vista, Windows 7, and Windows Server 2008 R2 operating systems

- Provides AppLocker integration to enforce compliance of applications to policy for all application types

- Supports BranchCache so that application data is stored in a content cache at a branch office
  - Reduces WAN network traffic
  - Makes applications available to branch users more quickly

- Supports securing application on removable devices with BitLockerToGo
  - Enables application streaming from USB device
App-V 4.6 Features (Contd.)

• Supports 12 additional languages that enable virtualization of non-English applications
  – App-V user interface can also run on these non-English languages

• Supports read-only shared cache to optimize server disk storage in VDI scenario environment

• Integrates with third-party LDAP directories

• Includes sequencing wizard improvements
App-V 4.6 Components

- **App-V Sequencer**
  - Wizard-based tool used to create sequenced applications that are ready for streaming delivery

- **App-V Management Server**
  - Delivers sequenced applications on-demand to App-V desktops

- **App-V Management Web Service**
  - Communicates read/write requests to the App-V Data Store

- **App-V Database**
  - Retains information related to the App-V 4.6 infrastructure

- **App-V Streaming Server**
  - Hosts and streams application packages to App-V clients

- **App-V Management Console**
  - MMC snap-in
  - Import applications, create and manage server groups, view and configure server settings, etc.

- **App-V Client for Desktops**
  - Installs on desktop client, caches and launches App-V applications

- **App-V Client for RDS**
  - Installs on RDSH servers that host App-V applications
App-V Sequencer

• Monitors installation and setup process for an application and records information necessary for the application to run in a client virtual environment

• Creates virtual applications and application packages

• Physical or virtual machine reflects desktop that will run application
  – Maintained in an isolated environment
  – Matches deployment environment
  – Image or revert to “clean” state after each application is sequenced
  – Requires second drive (drive Q) for application installation path consistency

• Application packages consist of several files that are eventually used by App-V clients to access and run sequenced applications
  – Sequenced application file contains program content assets (.sft)
  – Open Software Description file contains package definition data (.osd)
  – Icon file contains program icons used by client to launch the program (.ico)
  – Manifest XML file contains data to distribute sequenced applications with ESD
  – Sequencer project file used in the creation of application records (.sprj)
App-V Management Server

- Publishes application shortcuts and file type associations to App-V clients
- Handles user request for application data and streams the data on demand
- Supports multiple protocols
  - Real-Time Streaming Protocol (RTSP)
  - Real-Time Streaming Protocol Secure (RSTPS)
  - Hyper-Text Transfer Protocol (HTTP)
  - Hyper-Test Transfer Protocol Secure (HTTPS)
App-V Management Web Service

- Intermediate layer between the App-V Management Console and Data Store

- Manages the update of the App-V Data Store
App-V Database

• Hosted in a SQL Server 2005 or 2008 database

• Data contained in the store is diverse:
  − App-V Management Server configuration information
  − App-V Management Server reporting information
  − Application records
  − Application assignments
  − Application licensing information
  − Logging information

• App-V Management Server uses this store to retrieve application and configuration data, and write usage information

• App-V Management Server communicates with this store on behalf of administrators who configure App-V infrastructure
App-V Streaming Server

- Streams application packages to App-V clients
  - Used in Branch Office or similar scenarios where WAN link to App-V Management Server does not provide sufficient bandwidth

- Paired-down version of the App-V Management Server that does not include App-V Management Web Service or Management Console
App-V Management Console

• Provides ability to manage an App-V environment
  - Import applications
  - Manage file type associations for application
  - Manage application licenses
  - Create and manage server groups
  - View and configure server settings
  - Create policies
  - Generate reports
App-V for Desktops

- Included in MDOP for Software Assurance
- Provides the virtual environment for sequenced applications
- Handles application content stream from a Management Server or Streaming Server
App-V for RDS

- Provides environment to stream applications to RDSH servers, which can be published either directly to the client or to a virtual desktop running on RDVH servers.

- Manages the application package content stream into cache.

- Manages publishing refresh.
Microsoft Enterprise Desktop Virtualization

• Solves the last mile of application compatibility

**What it Does**

- Run legacy applications on Windows 7
- Shares host USB, network printers, and documents
- Redirect legacy web applications to Internet Explorer 6 or 7
- Automates first-time virtual workspace setup

**Customer Quotes**

“MED-V helps ensure that we can move forward with an enterprise-wide rollout of Windows 7 without getting sidetracked by application compatibility issues.”

– Alex Ramos, Senior Manager, IT Operations
Royal Caribbean Cruises Ltd.

**Benefits**

- Unblocks Windows 7 migration projects
- Provides a seamless end user experience
- Allows multiple versions of Internet Explorer to coexist during migration
- Enables deployment and management with existing systems, such as System Center Configuration Manager

Florida-based Royal Caribbean Cruises Ltd. operates cruise ships that call on approximately 400 destinations. The company has approximately 60,000 employees worldwide.
## MED-V 2.0: The Clear Choice for Enterprise Deployment

<table>
<thead>
<tr>
<th>Feature</th>
<th>Windows XP Mode</th>
<th>MED-V v1</th>
<th>MED-V v2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seamless Application Compatibility Environment</td>
<td>✔</td>
<td>✔</td>
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</tr>
<tr>
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**New for MED-V v2**
MED-V Architecture

Windows XP VHD MED-V Packager MED-V Workspace Enterprise Software Distribution Tool

MEDV Guest Agent

Windows Components & Applications

MED-V Components

MED-V Workspace

Incompatible Apps

Host – Windows 7

IE 8+

Redirection

MEDV Host Agent

Incompatible Published Apps

RDPRDP

Guest – Windows XP sp3

IE 6

MEDV Guest Agent

Diff Disk

Parent

Windows Virtual PC

Incompatible Apps

ESD Agent

ESD Agent
MED-V Lifecycle Management

Step 1: Create

Step 2: Deploy

Step 3: Manage
MED-V Lifecycle Management

Step 1

Create
VHD
Sysprep
Package
Create a VHD for the MED-V Workspace

• Create the VHD
  - Create an XP SP3 image
    New VPC image, existing VHD, convert WIM to VHD, etc.
  - Update the XP SP3 image
    Install latest OS patches
  - Install MED-V Requirements
    - Install VPC Integration Components (available with Windows Virtual PC)
      - Including the update for “Remote App”
    - .NET 3.5 SP1 and KB959209
    - No MED-V agent needs to be installed – this is done as part of first time setup
  - Install any 3rd-party applications your base image requires
    - ESD agents, AV software, etc.
    - The MDOP license grants license rights for the virtual XP instance – other apps may require additional licenses
• The following are recommendations when creating a MED-V Workspace:
  − Delete unnecessary files (uninstallers, temp files, log files, page file, recycle bin, etc.)
  − Install XP Terminal Services redirected drive performance hotfix (KB972435)
  − Block IE7 and IE8 automatic updates
    − IE7BlockerToolkit.EXE
    − IE8BlockerToolkit.EXE
  − Disable system restore points (via Sysprep.inf)
  − After running sysprep on the image defragment and compact the VHD
Sysprep Configuration for the VHD

- MED-V leverages standard sysprep process for VHD setup
  - Select Mini-Setup (or use -mini switch) and automate with Sysprep.inf
  - Sysprep provides the Volume License Key for Windows XP, Domain Join Account, Admin Password, and Workstation Naming
- ‘FtsCompletion.exe’ must be called as the final step in sysprep
  - It is installed during first time setup from the host agent
  - FtsCompletion.exe completes first time setup – and does the following:
    - Adds the user to “Remote Desktop Users” group and/or “Administrator” group in the guest
    - Copies setup log files to the host to assist with troubleshooting
    - Signals to MED-V that the setup process is complete
    - Reboots the MED-V Workspace
Sysprep.inf Overview

These are required for MED-V. The absence of these items will cause setup to fail.

These items may be configured by MED-V – set in the MED-V Workspace Packager

These items are MED-V best practices and setup calls
MED-V Workspace Packager

- Guides administrator through common package authoring tasks and settings

**Workspace Packager GUI**

**PowerShell**

- Setup.exe
- Workspace.msi
- VHD_File_Name.medv
- .reg Configuration File
- .ps1 PowerShell Script
MED-V on a Shared Computer

A Unique Workspace for Each User

• **Overview**
  - Recommended for knowledge-worker and single-user machines
  - Single parent VHD, unique differencing disk per user
  - MED-V data and settings located in user space
  - MED-V end-user setup run for each unique user

• **Details**
  - Each user is added as a member of the remote desktop users group
  - Could create multiple workspaces on a single machine

A Workspace that all users will share

• **Overview**
  - Recommended for task-workers and multi-user machines
  - Single parent VHD, one differencing disk for all users
  - MED-V data and settings located in global location
  - MED-V end-user setup only run once per machine

• **Details**
  - All authenticated users are added to the remote desktop users group
  - Guarantees a single workspace per machine
Internet Explorer Web Redirection

- Automatic redirection from the host browser to the workspace browser
  - Users type the URL in the IE host browser, click a link, or access a bookmark
  - MED-V evaluates the destination against the list of admin-controlled URL’s
  - Matched URL’s are automatically open in the redirected guest browser
- Redirected Web Address Setup
  - Administrators can define a set of redirected URL’s during the package setup
  - Post-deployment, redirected URL’s can be easily removed and added by deploying a registry update

Examples

- Wildcard Redirections:
  http://*.contoso.com

- Site Redirections:
  http://intranet.contoso.com/HR

- Page or Application Redirections:
  https://intranet.contoso.com/HR/benefits.asp

- Port redirection
  http://vpn.contoso.com:1025
MED-V Lifecycle Management

Step 2

Deploy Components
Methods
Configuration
Components to be deployed

• **Deploy Components Not Infrastructure**
  - MED-V is client based – there are no servers
  - Existing enterprise infrastructure and processes will need to be used to deliver and manage MED-V.

• **Files to be deployed**
  - **Host Software:**
    - Windows Virtual PC for Windows 7
    - Non Hardware-Assisted Virtualization [HAV] Patch ([KB977206](#))
  - MED-V Host Agent
    - MED-V_HostAgent_Setup.exe
  - Workspace
    - Setup.exe
    - Workspace_Name.msi
    - VHD_File_Name.medv
Methods of Deploying MED-V

- **User Initiated (lab and testing only)**
- **Enterprise Software Distribution (ESD) Product**
  - Deploy as you would any other application
  - VPC can be delivered with MED-V (requires reboot)
- **Configuration Manager – additional integration**
  - Manage with collections of MED-V Workspaces
  - Manage Applications to the guest VM using CM and AppV
  - NAT configured workspaces use same CM servers as the host
  - Uses host IP configuration to resolve MP/DP
  - Requires SCCM 2007 R2 or better
- **Configure as part of the base Windows 7 image**
  - Deploy the bits with the image
  - Workspace Setup is Launched by the user
Configuring MED-V for the User

• Configuration is done as part of MED-V First Time Setup (FTS)
  − The Workspace Setup publishes to the registry HKLM RUN key – MedvHost.exe
  − When the MED-V client is launched it validates whether FTS has run been for that user or workstation

• What happens during FTS
  − User prompted for domain credentials
  − Differencing Disk is created for the Workspace and launched
  − Mini-Setup is run w/ MED-V overrides (if applied)
  − FTScollection.exe is run
  − Workspace is Started
    − Applications are published
    − Web Apps are ready to be redirected
Deploy Example: Configuration Manager

• Administrative Steps
  – Create packages for Windows VPC, non-HAV patch, MED-V Host Agent, Packaged Workspace
  – Create or integrate with task sequence
  – Create advertisement for the target collection
  – Clients get the advertisement and perform the assigned task

• User Experience
  – VPC is silently installed and the user is prompted to reboot
  – MED-V Client and Workspace are installed silently
  – User is prompted for domain credentials and FTS runs
  – Applications are available once FTS completes
Deploy Example: Windows 7 Image

• Administrative Steps
  - Install the Windows VPC and other MED-V prerequisites
  - Install the MED-V Host Agent
  - Copy the MED-V Workspace package files to the image base
  - Create a shortcut to the Workspace installer – do not install the workspace
  - Prepare for distribution

• User Experience
  - Image is setup on the new hardware
  - The user logs-on to the Win7 host
  - The user then launches the MED-V Workspace install when directed
  - User is prompted to launch MED-V
  - MED-V starts and runs FTS runs and applications become available
MED-V Lifecycle Management

Step 3

Manage Workspace Management Troubleshooting Toolkit
MED-V Workspace Management

• **Application Publishing**
  - Deploy applications as you do today to the MED-V guest – the workspace is simply a “virtual” desktop
  - Applications are auto-published to the Host in-context

• **Wake-to-Patch**
  - Configuration to wake the Workspace on a schedule to ensure delivery of updates
  - Enhances the experience for Workspace reboots
  - Featured designed for Configuration Manager but can be utilized by other ESD’s

• **Settings**
  - All settings are maintained/updated in the Registry
Update Settings

Microsoft Enterprise Desktop Virtualization

Application Compatibility for the Enterprise
Microsoft Enterprise Desktop Virtualization (MED-V) creates a virtual Windows XP environment that can help resolve application compatibility problems. A MED-V workspace can contain a different version of Internet Explorer from the host computer to support websites that require it. You must create a Windows XP Virtual PC image before you can create a MED-V workspace package.

Create a MED-V Workspace Package
Creates a package containing the files necessary to deploy a MED-V workspace.

Manage Web Redirection
Maintain the web addresses that require redirection for Internet Explorer compatibility.

Manage Settings
Manage configurations for deployed Windows XP desktops.

Configure MED-V Workspace Settings
Specify settings for MED-V workspace startup properties, networking properties, and credential caching.

- Start MED-V workspace
  - Allow end users to manage MED-V workspace startup.
  - The following two options prevent the end user from managing startup:
    - Start the MED-V workspace when the user logs on.
    - Start the MED-V workspace at first use.

- Networking
  - Shared (NAT)
  - Bridged

- Store user credentials
  - Qualified
  - Enabled

Save as a *.reg
Import as required
MED-V Admin Toolkit

C:\Program Files\Microsoft Enterprise Desktop Virtualization\medvhost.exe /toolkit
Remote Desktop Services Architecture

- RD Web Access
- RD Gateway
- RD Connection Broker
- RD Session Host
- RD Virtualization Host
- Active Directory
- RD Licensing Server
- RD Client
RDS Overview

• **RD Session Host (RDSH)**
  - Supports centralized, session-based applications and remote desktops

• **RD Virtualization Host (RDVH)**
  - Supports centralized, virtual machine-based desktops using Hyper-V (VDI)

• **RD Connection Broker**
  - Supports unified administrator experience for session-based and virtual-machine based remote desktops

• **RD Web Access**
  - Supports web-based connection to resources published by RD Connection Broker

• **RD Gateway**
  - Supports connections from clients outside corporate firewall, using SSL, and proxies to resources inside the corporate network

• **RD Licensing Server**
  - Supports centralized administration of RDS client access licenses (CALs) required for each device or user to connect to an RDSH or RDVH Server
RD Session Host (RDSH) Features

- Single operating system-based session or application connections
- Scheduling algorithm fairly distributes processor cycles across sessions based on active sessions and load
- Computing resources shared on a processor basis and each session gets a fraction of each processor, taking advantage of multi-core processors
- Sessions have equal weight and given a processor quota that when exceeded causes session threads to be interrupted and queued
- Limit Roaming User Profile cache size through Group Policy
- Enhanced command-line tools based on Windows PowerShell
- Supports installation of applications simultaneously by multiple users
- Supports assignment of dedicated to dynamic IP addresses for sessions and applications
RD Virtualization Host (RDVH) Features

- Integrates with the Hyper-V role to support Personal or Pooled VM-based desktops

- Supports Windows XP SP3, Windows Vista, and Windows 7 VM-based desktops

- Prepares VMs for an RDP connection based on RD Connection Broker request

- Collects session information and VM state to send to RD Connection Broker
RD Connection Broker Features

• Manages user requests for connection to session-based or VM-based virtual desktops
  – Tracks connection host, connection state, connection ID, user name for each connection to RDSH and RDVH servers

• Supports load balancing of connections to RDSH and RDVH server farms
  – Provides ability to evenly distribute connections across RDSH and RDVH servers based on relative server weight value

• Supports reconnection to existing session-based and VM-based virtual desktops

• Supports RemoteApp and Desktop Connection
  – Provides load balancing and reconnection to virtual desktops access through these components
RD Web Access Features

• Enables users access to session-based remote desktops, session-based remote applications, or VM-based virtual desktops through a web browser

• Provides customized view of available RemoteApp applications and virtual desktops to users

• Supports forms-based authentication
  – Applications can provide a custom logon page and credential verification

• Supports RemoteApp program filtering
  – Users can only view programs they have permissions to see

• Public and Private computer modes
  – Public mode does not allow caching user name in browser, also 20 minute time of cookies that store user name
  – Private mode allows four hour time out of cookies that store user name
RD Gateway Features

• Uses RDP over HTTPS to establish a secure, encrypted connection between a remote device and an internal network resource
  – Requires Remote Desktop Client (RDC)

• Secure Device Redirection Enforcement
  – Limits RDC connections only to RDSH or RDVH servers that support secure device redirection
  – Requires RDC 7.0

• Configurable Idle and Session Timeouts
  – Enables ability to reclaim resources from inactive user sessions without affecting user session or data and allows enforcement of policy changes on active user connections

• Background Session Authentication and Authorization
  – Sessions for users without property changes are not affected by session timeout
  – Background authentication and authorization are performed automatically
RDS Licensing Server Features

- Supports installation, issue, and tracking of RDS CALs

- Supports Service Connection Point registration
  - License server automatically attempts to register a SCP in Active Directory
  - Allows license server to appear in list of known license servers in RDS configuration tools.

- Supports automatic migration of RDS CALs between license servers
  - Uses new Manage RDS-CALs Wizard

- Supports rebuilding the RD licensing database

- No support for automatic license server discovery for RDSH
  - Admin must specify license server name for RDSH server
RemoteApp

• Supports seamless execution of a remotely hosted application in its own resizable window to provide the same appearance as if the application was executed on the desktop
  – Programs can be dragged between multiple monitors
  – Programs have their own taskbar entry
  – Multiple programs share the same RDS connection

• Users can access RemoteApp programs several different ways
  – Double-click a RDP file on the desktop
  – Double-click a program icon on the desktop or Start Menu distributed using an MSI package (Windows 7)
  – Double-click a file with a file name extension that is associated with a RemoteApp program
  – Click a link to a RemoteApp program using RemoteApp and Desktop Connection through RD Web Access
Windows Server 2008 R2 Remote Desktop Services

• Virtual Desktop Infrastructure (VDI)
  − Solution to provision, configure, and manage virtual desktops
  − Combination of hardware, virtualization software, and management tools
  − Architecture driven by degree of workload abstraction
  − Remote desktop protocol provides access from a variety of client devices

• Microsoft VDI Solution: Hyper-V and RDS
  − Allows customers to centralize the storage, execution and management of a Windows desktop in the data center
  − Support for smaller scale deployments
  − Supports a wide range of scenarios from offshore workers to regulatory compliance environments
  − Supports application streaming and application hosting with App-V and RemoteApp
  − Supports Personal and Pooled VMs
  − Supports client access through RDP
Comparison of RDSH (Session-Based) and RDVH (VM-Based) Desktops

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<th>RDVH (VM-Based)</th>
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<tr>
<td><strong>Scalability</strong></td>
<td>Higher ratio of users/server</td>
<td>Lower ratio users/server</td>
</tr>
<tr>
<td><strong>Isolation/Security</strong></td>
<td>- Session-based isolation</td>
<td>- VM-based isolation</td>
</tr>
<tr>
<td></td>
<td>- Shared OS across users</td>
<td>- Dedicated OS per user</td>
</tr>
<tr>
<td></td>
<td>- Must run as standard user</td>
<td>- Can run as administrator</td>
</tr>
<tr>
<td><strong>Remote User Experience</strong></td>
<td>Protocol-dependent</td>
<td>Protocol-dependent</td>
</tr>
<tr>
<td><strong>User Flexibility</strong></td>
<td>User is running as a user</td>
<td>User can have full rights</td>
</tr>
<tr>
<td><strong>Application Compatibility</strong></td>
<td>Windows Server OS</td>
<td>Windows Client desktop</td>
</tr>
</tbody>
</table>
VDI Virtual Desktop Models

• **Personal Virtual Desktop**
  - One-to-one mapping between a user and a virtual machine
  - Model requires the creation of a virtual desktop for each user
  - Users can perform specialized tasks that require administrator access to their desktop
  - Users can access their personalized desktop from any computer while retaining the last saved state (persistent configuration)
  - Application streaming and application hosting support with App-V and RemoteApp
  - Best for Knowledge Workers (software developers, testers, and so on)

• **Virtual Desktop Pool**
  - One-to-many mapping between a virtual machine and users
  - Model requires a master VHD image that is duplicated or difference-based as needed to support user workload
  - Users can perform standardized routine tasks and have access to common applications (such as Microsoft Office)
  - Configuration state rolls back at logoff to provide a “clean” desktop for the next user’s session, but previous user’s state can be saved offline
  - Application streaming and application hosting support with App-V and RemoteApp
  - Analysis suggested to determine if session-based desktop is more efficient
  - Best for Task or Office Workers (CRM, ERP, and similar users)
Virtual Desktop Pool Considerations

• Identical Virtual Machine Configuration
  − Operating system
  − Applications

• Management
  − VHD duplication and storage
  − Single image update

• Windows Client Operating Systems
  − Does not support Windows Server operating systems
  − Does not support 3rd party operating systems

• Single Pool Membership
  − Virtual machines are restricted to membership in a single virtual desktop pool

• User Data Non-Persistent
  − Data saved by user in a VM may not be accessible after log off
  − Users may be connected to different virtual machine at next log on
Core VDI Components

- **Windows Server 2008 R2 Hyper-V**
  - Supports the creation, isolation, and execution of virtual desktops
  - Provides the assignment and control of system resources
  - Enables implementation of high-availability and fault-tolerance functionality

- **Active Directory Domain Services (ADDS)**
  - Stores the access rights mapping between users and virtual desktops

- **Remote Desktop Session Host (RDSH)**
  - Executes in redirection mode to disallow interactive user sessions
  - Communicates with RD Connection Broker to obtain VM IP address and redirect RDP client to connect to the VM
  - Securely redirects a user RDP connection to an identified VM

- **Remote Desktop Connection Broker (RD Connection Broker)**
  - Identifies a VM for a user to make an RDP connection
  - Communicates with RDVH to prepare VM for RDP connection, start a VM from saved state
  - Manages sessions to redirect users to existing VMs

- **Remote Desktop Virtualization Host (RDVH)**
  - Executes on Hyper-V hosts to serve requests for virtual desktops running in VMs
  - Prepares VMs for RDP connection based on request from RD Connection Broker
  - Monitors VM sessions and relays session information to RD Connection Broker
Other VDI Components

  - Enables remote users to access resources executing in the data center
  - Provides a web-based portal that displays available virtual desktops, RemoteApp–enabled applications, and session-based remote desktops to users

- **Remote Desktop Gateway (RD Gateway)**
  - Uses RDP over HTTPS connection for remote users to access resources executing in the data center
  - Enables secure, encrypted connection between remote users and internal resources

- **Remote Desktop Licensing (RD Licensing)**
  - Manages RDS client access licenses (RDS-CALs) that are required for each device or user to connect to an RDSH or RDVH server
  - New CALs not required for Windows Server 2008 R2, Windows Server 2008 CALs work

- **Windows Client Software Assurance – After July 1, 2010**
  - Applies to devices covered under Windows Client Software Assurance
  - Covered devices can be used to access VDI desktops in the datacenter (no additional charge)

- **Windows Virtual Desktop Access (Windows VDA) – After July 1, 2010**
  - Applies to devices not covered under Windows Client Software Assurance (thin clients, 3rd party devices)
  - License virtual copies of Windows client operating systems in VDI
Other VDI Components

• RemoteApp
  - Enables abstraction of applications from virtual desktop image
  - Integrates into virtual desktop for seamless access to applications running on RDSH
  - Enables applications to present on virtual desktop in their own resizable window
  - Solution for applications that are incompatible with virtual desktop operating system

• Application Virtualization (App-V)
  - Enables abstraction of applications from virtual desktop image
  - Provides streamed delivery and isolated execution of applications on virtual desktops
  - Requires an App-V client on the virtual desktop
  - Solution to run multiple versions of applications or incompatible applications simultaneously

• System Center Virtual Machine Manager (VMM)
  - Provides a single, integrated console to manage physical Hyper-V hosts and VMs
  - Provides functionality to automatically provision virtual desktops
  - Provides functionality to deploy VMs to most suitable Hyper-V host

• Other System Center Suite Components
  - ConfigMgr
  - OpsMgr
  - DPM
Designing a VDI using Windows Server 2008 R2 Hyper-V and RDS

1. User logs in to RD Web access web page
2. RD Connection Broker queries to retrieve list of virtual desktops to display to the user
3. After a user selects a virtual desktop, a connection to the RD Gateway is created
4. The RD Gateway forwards the connection to the RD Session Host that is running in redirection mode
5. The RD Session Host requests that the RD Connection Broker prepare a VM for the user and returns the VM IP address
6. The RD Connection Broker queries AD Domain Services to authorize user access to the selected virtual desktop
7. The RD Connection Broker coordinates with the RD Virtualization Host to ensure that the VM is started and returns the VM IP address to the RD Session Host
8. The user connects to the virtual machine through the RD Gateway
VDI Design Considerations

• Deployment Scale
  - Enterprise, multiple locations, departmental
  - For large scale deployment, consider Citrix XenDesktop Solution with Hyper-V

• User Categorization
  - Identify user categories, connection, and desktop permissions requirements
  - Define with respect to personal or pooled virtual desktops, and session-based options

• Client Operating Systems
  - VDI architecture dependent on performance and available features of client operating system

• Applications
  - Define application set, characteristics, execution, and delivery requirements
  - Identify application delivery and presentation restrictions

• Virtual Desktop Image
  - Thin: dynamically assembled virtual desktop (user state and application virtualization)
  - Rich: static virtual desktop (local user state and applications)
  - Hybrid: some base applications with user state and application virtualization
VDI Design Considerations

- **Client Devices**
  - Thin client devices (terminals, and so on)
  - Rich client devices (PCs, laptops, and so on)

- **Connectivity**
  - Identify connection requirements (LAN, WAN, Dial-up, ISP)
  - Identify encryption requirements

- **Storage**
  - Identify storage requirements for user state and data
  - Identify storage requirements for virtual desktop VMs

- **Security**
  - Identify groups, departments, locations that require higher security levels
  - Identify infrastructure impact based on additional instance requirements

- **High-Availability**
  - Identify virtual desktops that must be highly available
  - Identify high-availability solutions for VDI infrastructure servers, networks, and storage
VDI Design Steps

• Design the RDVH server infrastructure
  - Determine the RDVH form factor and configuration
  - Define the number of RDVH servers based on monitoring, test, and/or pilot data
  - Create RDVH failover clusters to host high-availability VMs

• Design the RDSH server infrastructure
  - Determine virtual machine or physical server based instances
  - Define the number of RDSH servers to support load requirements
  - Use additional RDSH servers for fault tolerance

• Design the RD Connection Broker server infrastructure
  - Define single-farm or multiple-farm support
  - Determine the number of RD Connection Broker servers to support load
  - Install RD Connection Broker on failover clusters for high-availability
  - Place close to RDSH servers

• Design the RD Web Access server infrastructure
  - Define virtual machine or physical server based instances
  - Determine the number of RD Web Access servers required
  - Use Network Load Balancing for high-availability
VDI Design Steps

- Design the RD Licensing infrastructure
  - Define single-farm or multiple-farm support
  - Determine virtual machine or physical server instances
  - Determine number of RD Licensing servers for fault tolerance
  - Place close to RDSH servers

- Design the RD Gateway server infrastructure
  - Implement for remote users that require connection to VDI through firewall
  - Define secure connection models along with placement of RD Gateway servers
  - Define single-farm or multiple-farm support
  - Determine number of RD Gateway servers to support load requirements
  - Use additional RD Gateway servers for fault tolerance and load balancing

- Design the storage infrastructure
  - Storage size and performance for user state, data, and VMs
  - Determine fibre-channel or iSCSI SAN storage systems
  - Identify de-duplication and caching benefits
  - Define high-availability backup and recovery process and procedures

- Design the network infrastructure
  - Determine network segmentation to contain client, cluster, management, and other traffic types
  - Determine network configuration to support secure communications
## Windows Server 2008 R2 SP1

<table>
<thead>
<tr>
<th>RemoteFX</th>
<th>Dynamic Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable 3D graphical and rich media capabilities with Virtual GPU</td>
<td>Enables higher density ratios for workloads on Hyper-V</td>
</tr>
<tr>
<td>Improved Remote Desktop Protocol (RDP)</td>
<td>Enables 4x higher density*</td>
</tr>
<tr>
<td>Rich connection and network displays</td>
<td>Preserves and extends Windows Server 2008 R2's inherent security</td>
</tr>
<tr>
<td>Supported on Enterprise Server Hardware</td>
<td>Significantly drops the cost per user</td>
</tr>
</tbody>
</table>

*Compared to Windows Server 2008 R2 RTM release. Based on internal testing using LoginVSI Medium workload"
RemoteFX requirements

- **RDVH**
  - SLAT-enabled processor
  - GPU
    - The GPU driver must support DirectX 9.0c and DirectX 10
    - If more than one GPU is installed in the RemoteFX server, the GPUs must be identical
    - Enough GPUs or VRAM to cope with the number of users
    - To use Live Migration, the source and destination RemoteFX servers must have the same GPU installed.

- **RDSH**
  - The processor on the RD Session Host server must support Streaming SIMD Extensions 2 (SSE2)

 Known good hardware and issues

• GPUS
  - nVidia
    - Quadro FX5800, FX4800 and FX3800
    - Quadro 6000, 5000, 4000
    - Quadroplex 2200 S4
    - Tesla S2050 and S2070
  - ATI
    - FirePro V5800, v7800, v8800

• Servers
  - IBM iDataPlex
  - Dell PowerEdge R610, R710, M610x
  - HP DL/ML 370, WS460c

• Don’t do:
  - Use Crossfire and nVidia SLI extensions or even connect cards together
<table>
<thead>
<tr>
<th>Maximum resolution</th>
<th>Maximum number of monitors in virtual machine setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 monitor</td>
</tr>
<tr>
<td>1024 x 768</td>
<td>75 MB</td>
</tr>
<tr>
<td>1280 x 1024</td>
<td>125 MB</td>
</tr>
<tr>
<td>1600 x 1200</td>
<td>184 MB</td>
</tr>
<tr>
<td>1920 x 1200</td>
<td>220 MB</td>
</tr>
</tbody>
</table>
RemoteFX Value Proposition

<table>
<thead>
<tr>
<th>Enabling Technology</th>
<th>Differentiating Value Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGPU</td>
<td>Content and GPU independent intercept &amp; rendering</td>
</tr>
<tr>
<td></td>
<td>Single GPU for multiple Hyper-V guests</td>
</tr>
<tr>
<td>Host side rendering</td>
<td>Applications run at full speed on host</td>
</tr>
<tr>
<td></td>
<td>Remotely any content</td>
</tr>
<tr>
<td>Intelligent screen capture and hardware-based encode</td>
<td>Screen deltas sent to client based on network and client availability</td>
</tr>
<tr>
<td>Bitmap remoting and hardware-based decode</td>
<td>CODEC designed for text and image content</td>
</tr>
<tr>
<td></td>
<td>Single CODEC for VDI</td>
</tr>
<tr>
<td></td>
<td>Full range of client devices</td>
</tr>
</tbody>
</table>
Deployment Considerations

- **Simple integration with inbox tools**
  - Server Manager
  - Hyper-V Manager – shows up as a 3D video adapter
  - WMI, Power shell support

- **Performance and Scale**
  - Performance whitepaper, planning and deployment guides available by SP1 RTM

- **Migration**
  - RemoteFX for VDI is targeted at new deployments
    - New HW requirements [SLAT Processors, GPUs] require new servers
    - GPUs can be internal or external [e.g. appliance]
  - Can have a mix of RemoteFX enabled and non-RemoteFX VMs on the same server
  - Supports Live Migration across servers – requires identical GPUs
RemoteFX Clients

- Windows/Non-Windows Embedded OS
- Legacy PC
- Rich PC Thin Clients (e.g. Windows Embedded)
- New Laptop
- Limited SW Graphics Stack and Limited GPU
- Full SW Graphics Stack and Legacy GPU
- Full SW Graphics Stack and Optional Modern GPU
- Full SW Graphics Stack and Modern GPU
Ultra Lightweight Thin Clients

• New class of Thin Client
• ARM, MIPS, or PPC based designs
• Running Windows CE, Linux, or other embedded OS
• Support USB Redirection (true for all remote client types)
• Lower client resources
  − CPU: 200 – 400 MHz
  − Memory: < 256MB RAM, < 128MB Flash
  − Less than 5w
• Leverage HW CODEC acceleration

Customer Value: Purpose built low cost, low power device
Introducing MDT 2010

• MDT 2010 adds full support for Windows 7 and Windows Server 2008 R2 and latest deployment tools:
  – Windows Automated Installation Kit 2.0
  – Windows PE 3.0
    – New way to construct an image
  – USMT 4.0
    – New hardlink and offline migration capabilities
  – Deployment Image Servicing and Management tool (DISM)
    – Replaces several previous tools, adds new enumeration capabilities

• MDT 2010 makes these changes transparent
Script Enhancements for MDT 2010

- Improved diagnostics and logging
  - More information to help troubleshoot problems, including suggestions on possible causes
  - More specific errors (instead of just success or failure)
  - Real-time logging directly to a network share
- Formatting and structure improvements
  - Common functionality will be moved into library scripts
  - Increase modularity (to help us with testing)
  - Improve readability (to help you follow the logic)
Documentation Enhancements for MDT 2010

• Emphasis on a single CHM help files instead of long Word documents
  − Linked topics to help with navigation
  − Fully indexed and searchable
  − Separation of process and technical guidance

• Continued refinement of content
  − Provide information on both “how” and “why”
  − More samples and reference information
  − Comprehensive quick start guides
  − Walk-through videos (possibly)
Deployment Technologies

- Computer Imaging
- Create repeatable images and custom WinPE CDs
- Lite Touch Installation
- Deployment without a software distribution infrastructure
- Manually initiated
- Uses network share, Windows Deployment Services, CD/DVD, or USB
- Refresh, upgrade, replace, new computer
- Zero Touch Installation
- Microsoft Deployment 2010 integration
- Task sequence extension
- Refresh, replace, new computer
Deployment Scenarios

• New Computer
  − New Computer unattended installation
  − Reference Computer image (golden) creation
• Refresh Computer
  − Includes User State Migration during re-imaging process
• Replace Computer
  − Includes User State Migration from the old Computer to the new Computer
• Upgrade Computer
  − Upgrades the PC from Windows XP or Windows Vista to Windows 7
MDT 2010 From a deployment perspective…

• Compatible
  – No increased hardware requirements
  – Maintained application compatibility with Windows Vista

• Familiar
  – Setup and installation is like Windows 7
  – Scripts, answer files, and processes are generally compatible

• Refined
  – New Windows Automated Installation Kit tools enhance or replace some older tools
  – Tools enable new scenarios
MDT 2010 Focus Areas

- **Deployment Workbench Architecture Enhancements**
  - Improve administrative processes
  - Support more than one user
  - New scenarios with more flexibility

- **PowerShell Capabilities**
  - Enhanced automation capabilities
  - Improved extensibility for customers and partners
  - A platform to build on

- **Task Sequence and Script Enhancements**
  - Improve diagnostics, logging, error reporting, and recovery
  - Support deployment to any disk or partition
  - New features

- **Configuration Manager Improvements**
  - Support for the latest ConfigMgr R2 and SP2 releases
  - Integrate Windows 7 enhancements
  - Script, wizard, and task sequence improvements
MDT 2010 Focus Areas

Deployment Workbench Architecture Enhancements

- Improve administrative processes
- Support more than one user
- New scenarios with more flexibility

• Folders everywhere
  - Drag-and-drop, copy-and-paste, cut-and-paste support

• Expanded scenarios
  - Local, network, standalone DFS
  - Multiple deployment shares, multiple users
  - Copy between deployment points

• Replication
  - Create “linked deployment shares” for replication
  - Define selection profiles to control what is copied, as well as whether to merge or replace

• New database capabilities
  - Additional columns
  - Dynamic column display
MDT 2010 Focus Areas

**PowerShell Capabilities**

- Complete PowerShell support
  - Anything you can do from the UI can be scripted
  - Drive provider for enumerating folders, items, and properties
  - Cmdlets to help with importing content, generating boot images, etc.
- Ideal for hydration, automated customization, and reporting
- Can be leveraged for “alternative” UIs

Enhanced automation capabilities
Improved extensibility for customers and partners
A platform to build on
Task Sequence and Script Enhancements

- Improved diagnostics and logging
  - More specific errors (instead of just success or failure)
  - Real-time logging directly to a network share
  - Log collecting
- Better network retry logic
- Formatting and structure improvements
  - Common functionality will be moved into library scripts
  - Increase modularity (to help us with testing)
  - Improve readability (to help you follow the logic)
MDT 2010 Focus Areas

Task Sequence and Script Enhancements

- Refresh BitLocker-encrypted machines
  - Without decrypting when deploying Windows 7
- Deploy to any disk or partition
  - Windows Vista or later
- Security improvements
  - Variable obfuscation
- Wizard improvements
  - No more command windows (with F8 support)

- Improve diagnostics, logging, error reporting, and recovery
- Support deployment to any disk or partition
- New features
MDT 2010 Focus Areas

Configuration Manager Improvements

- USMT 4.0 hardlink support
- All previously-discussed script enhancements
- General-purpose wizard capability
  - Replaces “Unknown Computer” wizard

Support for the latest ConfigMgr R2 and SP2 releases
Integrate Windows 7 enhancements
Script, wizard, and task sequence improvements
Primary Configuration Manager Features

- Asset Management
  - Hardware and Software Inventory
  - Asset Intelligence
  - Software Metering

- Deployment
  - Software Distribution
  - Operating System Deployment
  - Software Update Management

- Network Security and Support
  - Desired Configuration Management
  - Remote Tools
  - NAP

- Mobile Device Management

- Reporting
How Configuration Manager Can Benefit Organizations

Configuration Manager 2007 allows organizations to:

- Reduce TCO in systems management
- Make IT a strategic business asset
- Empower non-IT employees through productivity tools
Primary features:

- Hardware/software inventory
- Software distribution
- Operating system deployment
- Software updates
- Software metering
- NAP
- Desired configuration management
- Mobile device management
- Remote tools
- Wake On LAN
Configuration Manager 2007 Administration Console

Asset Intelligence

The Configuration Manager Asset Intelligence feature can be used to inventory and report on the software in use in your environment.

Asset Intelligence feature status: **Disabled**
Asset Intelligence Sync Point status: **Online Connector is not found**
Asset Intelligence catalog updated: **N/A**

Asset Intelligence Catalog Summary

Asset Intelligence catalog information is displayed in the following table and bar chart.

<table>
<thead>
<tr>
<th>Invented software titles</th>
<th>Identified by Microsoft</th>
<th>Identified by administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Software categories</td>
<td>74</td>
<td>0</td>
</tr>
<tr>
<td>Software families</td>
<td>21</td>
<td>0</td>
</tr>
</tbody>
</table>

Links and Resources

Use the following links, reports, and resources to manage Asset Intelligence information.

**Navigation**
- Perform local catalog edits
- Software List
- Hardware Requirements
- Generate Report

**Web Reports**
- Categorization Details

**Resources**
- Connect to System Center Configuration Manager
- Microsoft Volume Licensing
- Microsoft eOpen
- Microsoft Product License Advisor
New features in SP1:

- Out of band management
- Updates to supported operating systems
- Asset Intelligence improvements
- Additional reports
### New features in Configuration Manager 2007 R2:

- Support for App-V applications
- Operating system deployment enhancements
- Desired configuration management integration of Forefront Client Security
- SQL Reporting Services reporting
- Client status reporting
## Configuration Manager 2007 SP2 Features

### New features in SP2:

- ExtADSch.exe command-line feedback
- Support for Windows 7 clients and Windows Server 2008 R2 clients and site systems
- Support for 64-bit Operations Manager agent
- BranchCache and DirectAccess support
- Improved support for 64-bit clients
- No two-minute delay in machine policy updates
- No 10-minute delay in user policy update after logon
- Changes to out of band management, Asset Intelligence, and operating system deployment
### New features in Configuration Manager 2007 R3:

- Windows client power management
- Operating system deployment enhancements, including prestaged media
- Ability to create collections based on desired configuration management compliance
- Enhancements to collection management
- Dynamic collection evaluation
- Delta discovery
- Support for up to 300,000 clients per hierarchy

Configuration Manager 2007 R3 is an add-on release, which requires that you first install Configuration Manager 2007 SP2, and it is available as a Software Assurance benefit. (Non-SA customers may repurchase.)
Implementing Configuration Manager for Small-to-Medium Organizations

A. Datum Corporation:
- Small company
- One location
- 500 computers
- Windows Server 2008 R2
- AD DS
- WSUS

Needs:
- Hardware and software inventory
- Application deployment by department

Configuration Manager Deployment:
- Primary site
- Site server
- Database server
- SMS provider
- Management point
- Distribution point
- Reporting point
- Fast boundary
- Custom collections
Implementing Configuration Manager for Medium-to-Large Organizations

- Domain Controller
- Dedicated Site Server
- Management Points on an NLB Cluster
- BITS-Enabled Distribution Points
- SQL Server 2008
- Database Server
- WSUS 3.0
- Software Update Point
- Fallback Status Point
- State Migration Points
- PXE Service Points
- Reporting Point
- Manufacturing Facility
- Distinct Fast Boundary for Each Location
- Satellite Office
- Protected Branch Distribution Point
- Main Office
- Protected Distribution Point
Implementing Configuration Manager for Global Organizations

Parent sites are *always* primary sites, and secondary sites are *always* child sites.
The Configuration Manager client consists of multiple agents that perform tasks such as:

- Receive and process data and instructions from the Configuration Manager site
- Scan the client computer and mobile devices for information such as inventory data and status messages, and report back to the Configuration Manager site
- Install software applications and updates

Configuration Manager 2007 supports Windows computer (internal network and Internet-based) and Windows Mobile device clients
<table>
<thead>
<tr>
<th>Operating System</th>
<th>Edition</th>
<th>Service Pack</th>
<th>System Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 2000</td>
<td>Professional, Server, Advanced Server, Datacenter</td>
<td>SP4</td>
<td>x86</td>
</tr>
<tr>
<td>Windows XP</td>
<td>Professional</td>
<td>SP2 or SP3</td>
<td>x86</td>
</tr>
<tr>
<td>Windows XP Tablet PC</td>
<td></td>
<td>SP2 or SP3</td>
<td>x86</td>
</tr>
<tr>
<td>Windows XP Embedded SP2</td>
<td></td>
<td></td>
<td>x86</td>
</tr>
<tr>
<td>Windows Vista</td>
<td>Business, Enterprise, Ultimate</td>
<td>No service pack, SP1, or SP2</td>
<td>x86 or x64</td>
</tr>
<tr>
<td>Windows 7</td>
<td>Professional, Enterprise, Ultimate</td>
<td></td>
<td>x86 or x64</td>
</tr>
<tr>
<td>Windows Server 2003</td>
<td>Web, Standard, Enterprise, Datacenter, Storage</td>
<td>SP1 or SP2</td>
<td>x86, x64, or IA64</td>
</tr>
<tr>
<td>Windows Server 2003 R2</td>
<td>Standard, Enterprise, Datacenter</td>
<td></td>
<td>x86 or x64, x64, or IA64</td>
</tr>
<tr>
<td>Windows Server 2008</td>
<td>Standard, Enterprise, Datacenter</td>
<td>SP1 or SP2</td>
<td>x86 or x64</td>
</tr>
<tr>
<td>Windows Server 2008 R2</td>
<td>Standard, Enterprise, Datacenter</td>
<td></td>
<td>x64</td>
</tr>
</tbody>
</table>
Internet-Based Client Management

Internet-based client management:
- Provides some management features for clients that do not access the internal network or VPN
- Does not support Internet-based client deployment
- Does not support features that require AD DS
- Does not support features that are inappropriate for public networks

Requires:
- Configuration Manager 2007 site in native mode
- Site system roles that are configured to support Internet-based clients
- Firewalls configured to publish site systems to Internet
- Clients configured for Internet-only management
Mobile Client Support

- Operating System Edition
  - Windows CE
    - .NET 4.2 (ARM processor only)
    - .NET 5.0 (ARM and x86 processors)
  - Windows Mobile for Pocket PC
    - 2003
    - 2003 Second Edition
    - Phone Edition 2003
    - Phone Edition 2003 Second Edition
    - 5.0
    - 5.0 Phone Edition
  - Windows Mobile
    - Smartphone 2003
    - 5.0 for Smartphone
    - 6 Standard
    - 6 Professional
    - 6 Classic
    - Windows Mobile Device Center 6.1
    - Windows Mobile Device Center 6.5

- Mobile device configuration items
- Software distribution
- Hardware inventory
- Software inventory
- File collection
The Basics – Why Use SCUP?

• Security – Duh!
  − Increasing amounts of 3rd party vendor exploits and vulnerabilities

• 3rd Party Vendor Catalogs
  − Ability to provide rapid deployment of applicable driver/application updates to improve functionality

• Better user experience
  − Offering updates in a single maintenance window along with accustomed patch windows

• Easier administration and maintenance
  − Targeting based on rules and logic
  − Persistent deployment challenges
The Basics – How Does SCUP Work?
What is Updates Publisher?

• Application that allows…
  - Authoring of custom software update definitions
  - Importing of partner software update definitions
  - Managing of these software updates
  - Publishing of these software updates for use with ConfigMgr
Common Updates Publisher Terms

- Software Update – a single update definition (includes title, rules and binary)
- Bundle Update – an update that groups other updates together
- Superseded Update – an update that has been replace by a new update
- Prerequisite Update – an update that must be installed prior to another update
- Detectoid – high level WSUS installed rule (example: Architecture is x64)
- Catalog – a container of updates, bundles, detectoids …
- Applicability Rules – rules that define an update is installable and installed
- Rules Editor – feature that enables building applicability logic
Updates Publisher users can either download already existing catalogs or create their own. Once approved, updates can be published into WSUS which will be synchronized into a Configuration Manager environment. The updates are now in Configuration Manager and can be scanned and deployed on client machines with the same process as Microsoft Updates.
Same Experience as Microsoft Updates
Requirements

- Windows Server Update Services (WSUS) 3.0 SP2
- .NET Framework 4.0
- Trusted Signing Certificate
- Single user application
- Will Support Configuration Manager 2007 SP2 & 2012
Current Partner Catalogs

• Adobe
  – Adobe Acrobat X Updates Catalog
  – Adobe Flash Player Updates Catalog
  – Adobe Reader X Updates Catalog
• Dell
  – Dell Business Client Updates Catalog
  – Dell Server Updates Catalog
• Hewlett-Packard
  – Hewlett-Packard Client Updates Catalog
  – Hewlett-Packard Server Updates Catalog