Deploying Windows 7

Lesson 3

Objectives

- Understand enterprise deployments
- Capture an image file
- Modify an image file
- Deploy an image file

Understanding Enterprise Deployments

Careful planning is required and the following objectives must be considered:

- Create standardized computing environments
- Minimize user interaction at the workstation
- Ensure continued functionality of all hardware and software resources
- Minimize interruption of user productivity

Steps to Deploy an Enterprise Workstation

1. Build a deployment share.
2. Perform a reference computer installation.
3. Capture an image of the reference computer.
4. Boot the target computers.
5. Apply the Windows 7 reference computer image.

Windows Deployment Tools

- Windows 7 Automated Installation Kit
- Microsoft Deployment Toolkit 2010
- Windows Deployment Services

Windows 7 Automated Installation Kit (AIK)

- Primarily used by OEMs
- OEMs deploy Windows 7 workstations two ways:
  - Build-to-Plan (BTP)
  - Build-to-Order (BTO)

Windows 7 AIK Tools

- Windows System Image Manager *(Windows SIM)*
- ImageX.exe
- Deployment Image Servicing and Management *(DISM.exe)*
- Windows Pre-installation Environment *(PE)*
- System Preparation *(SysPrep.exe)*
- User State Migration Tool *(USMT)*

Microsoft Deployment Toolkit (MDT) 2010

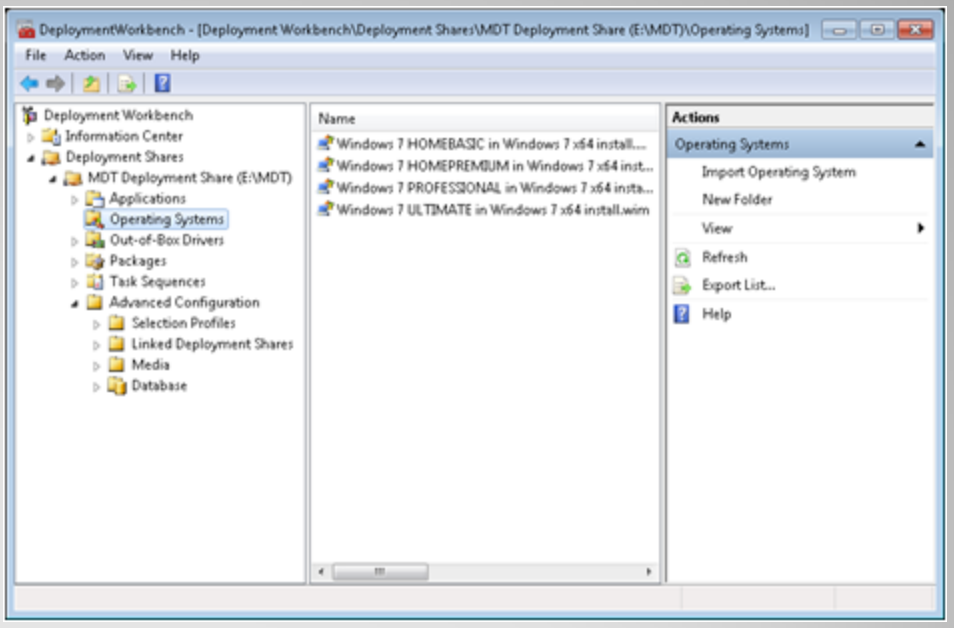
- Superset of Windows 7 AIK for enterprise network deployments
- Two types of deployments:
  - Lite-touch installation (LTI)
  - Zero-touch installation (ZTI)

Enterprise Deployment Scenarios

- New computer
- Upgrade computer
- Replace computer
- Refresh computer

MDT 2010 Deployment Workbench Interface

- Creates ***task sequences***
- Includes answer files and additional tasks
- Can perform tasks before and after Windows 7 installation



Windows Deployment Services (WDS)

- Included in Windows Server 2008
- Used to deploy Windows imaging files over the network
- Network must support:
  - Dynamic Host Configuration Protocol (DHCP)
  - Pre-boot Execution Environment (PXE)

CAPTURING IMAGE FILES

Image Files

- Traditional files are sector-based.
- Common extensions are .iso and .img.
- Microsoft uses Windows Imaging files (.wim).
- File-based images

Capturing Images

- Depending on the environment
  - Manual or automatic
  - Simple to complex
  - Only one image
  - Many images for different users

Capturing an Image Manually Using ImageX.exe

1. Install the reference computer
2. Prepare the reference computer (SysPrep)

```
sysprep /generalize /oobe
```

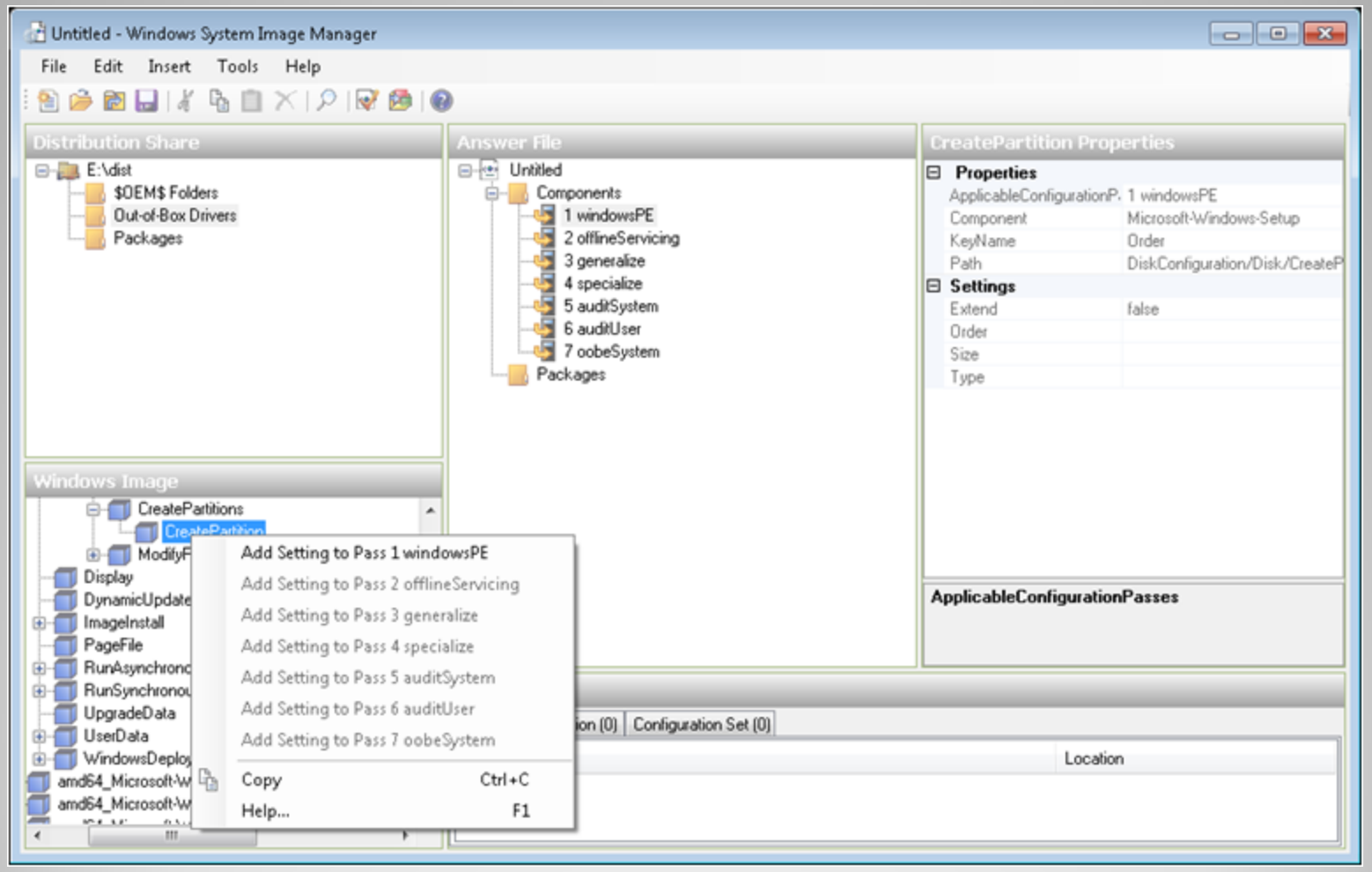
3. Create a Windows PE Boot disk
4. Capture the image file

```
Imagex.exe /capture c: d:\win7.wim "Win7" /verify
```

Using Windows SIM

- Creates answer files to streamline the process of creating multiple images
- Provides responses to prompts that appear during Windows 7 installation
  - Partition and format disks
  - Install device drivers
  - Configure Windows 7 parameters

Answer File Settings

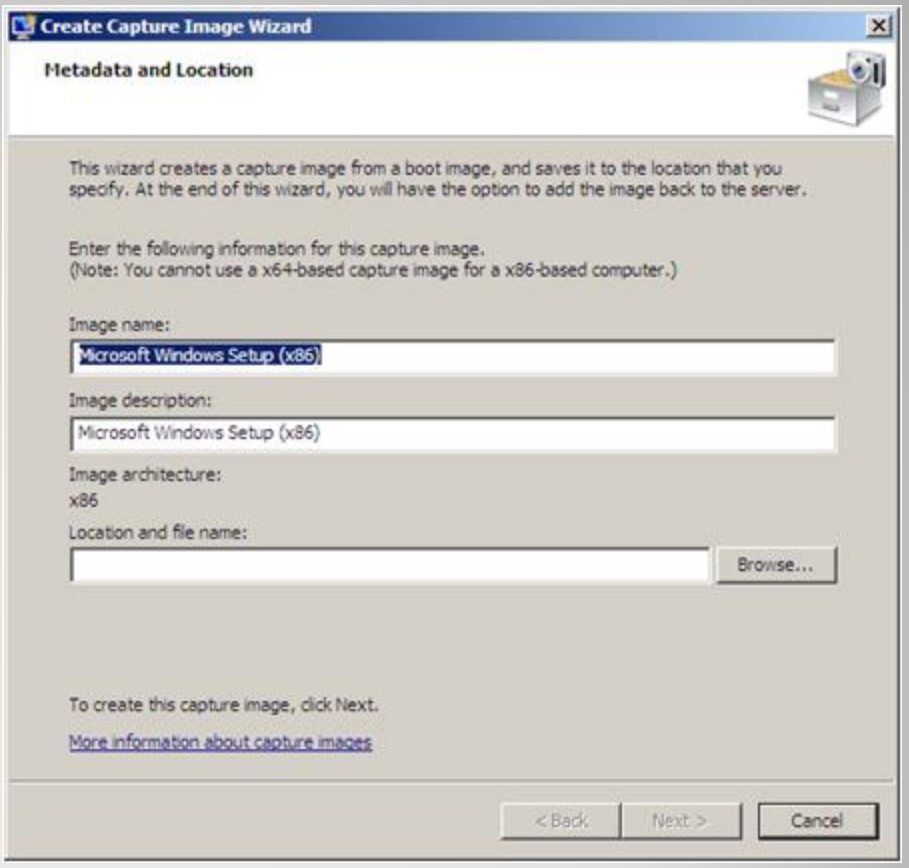


Applying an Answer File

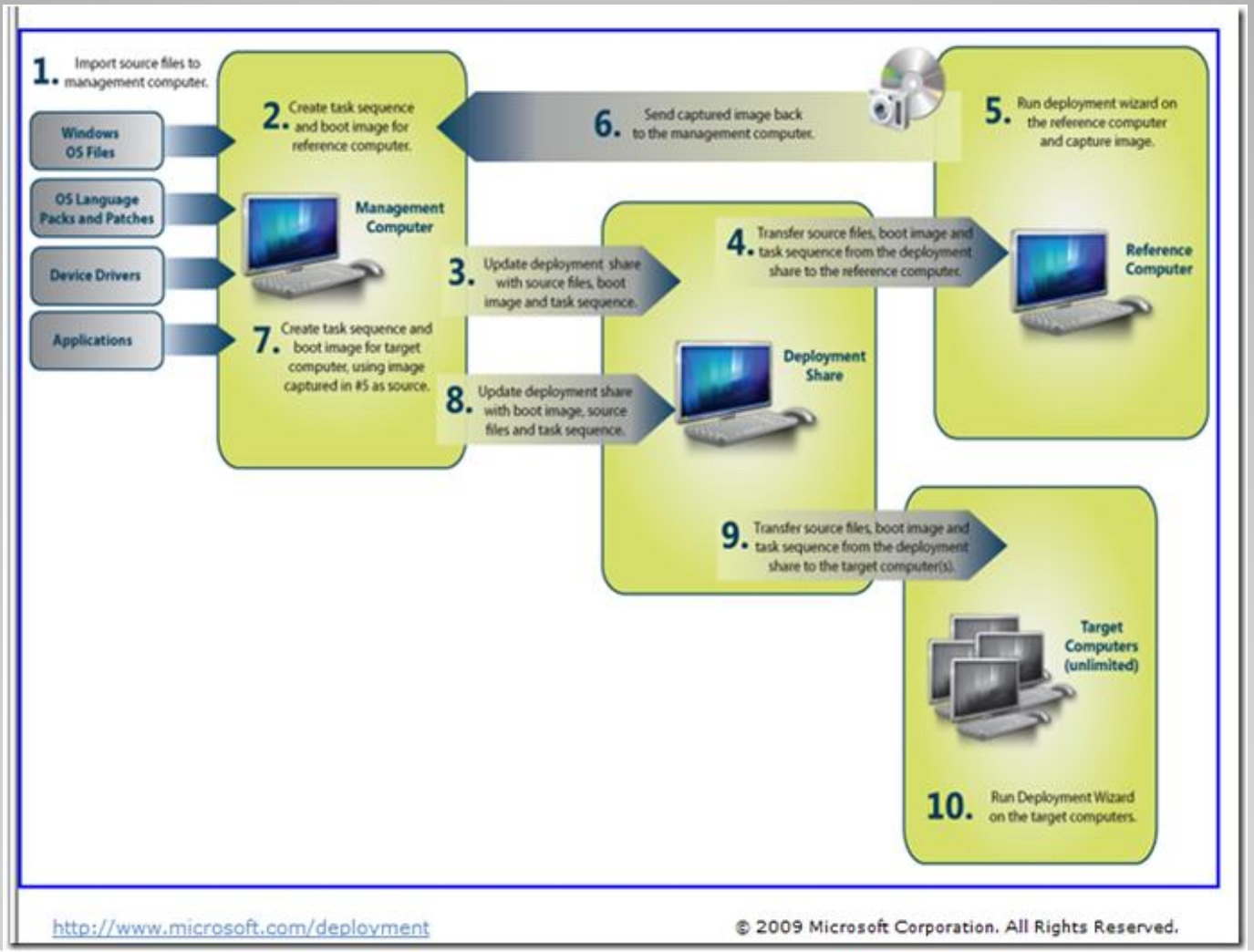
- Copy the configuration set files to a removable medium (CD, DVD, or USB flash)
- Boot from Windows 7 installation DVD
- Insert removable media containing answer file
- Windows setup scans for answer file
- Can also start the installation from a Windows PE command prompt and specify the answer file

Capturing an Image Using WDS

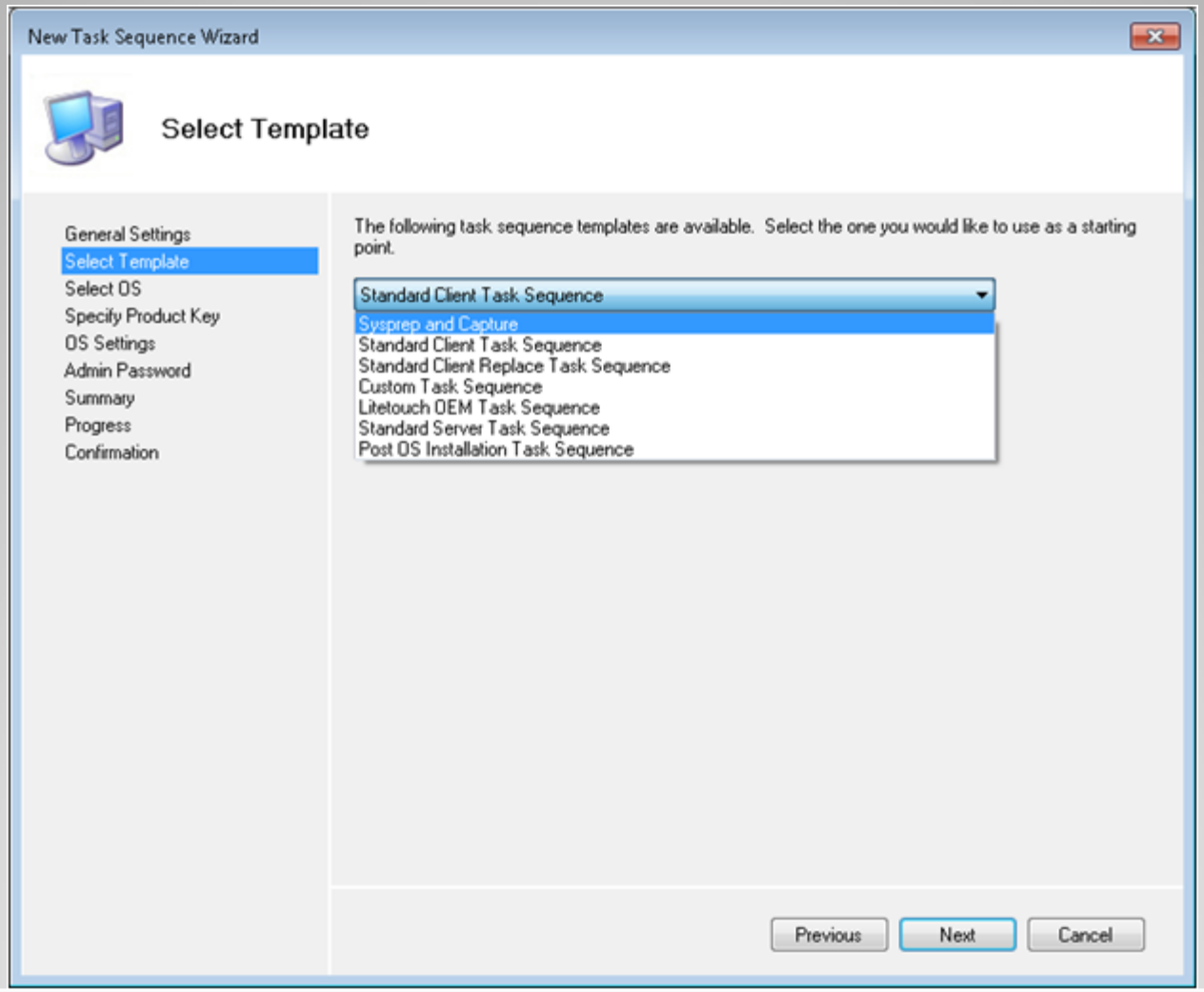
- Automates the capture process
- Wizard-based
- Create capture image and upload it to WDS server
- Can be deployed immediately



Capturing an Image Using MDT 2010



The New Task Sequence Wizard



Introducing Deployment Image Servicing and Management (DISM.exe)

- Used to modify image files while offline
  - Add device drivers
  - Add language packs
  - Add packaged updates
  - Enable or disable operating system features
  - Append a volume image to a workstation image
  - Combine multiple images in a single Windows Imaging file

DEPLOYING IMAGE FILES

Understanding Image Types

- Using thick images
- Using thin images
- Using hybrid images

Deploying Images Manually Using ImageX.exe

1. Create a disk partition (diskpart)

```
Create partition primary
Format fs=NTFS label="New Partition" quick
Assign letter=c
```

2. Access the install image
3. Apply the install image

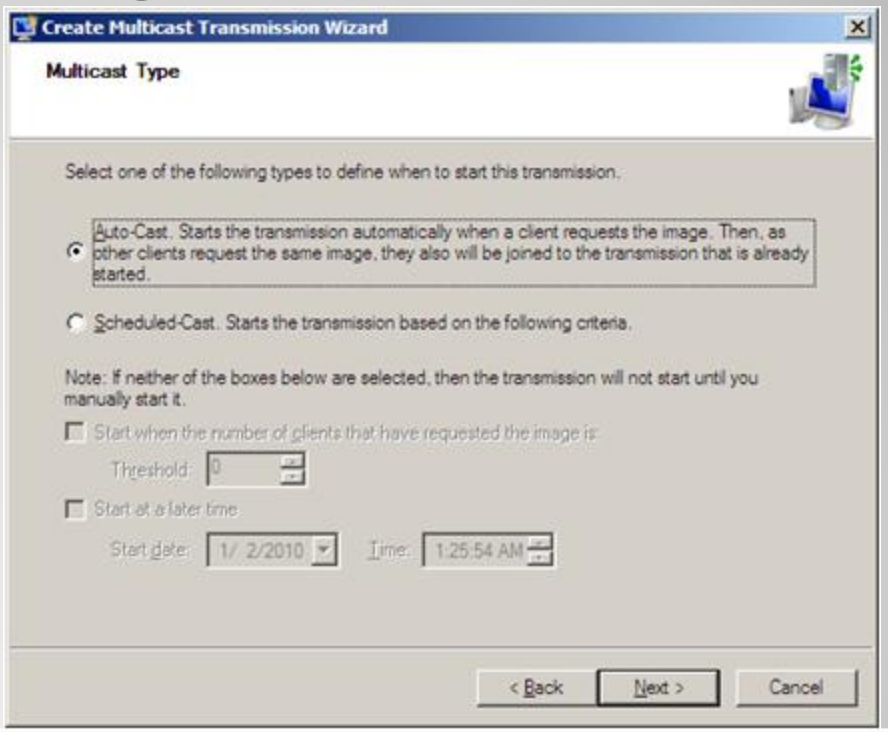
```
Imagex /apply z:\images\win7.wim 1 c:
```

4. Apply boot files

```
Bcdboot c:\windows
```

Deploying Images Using WDS

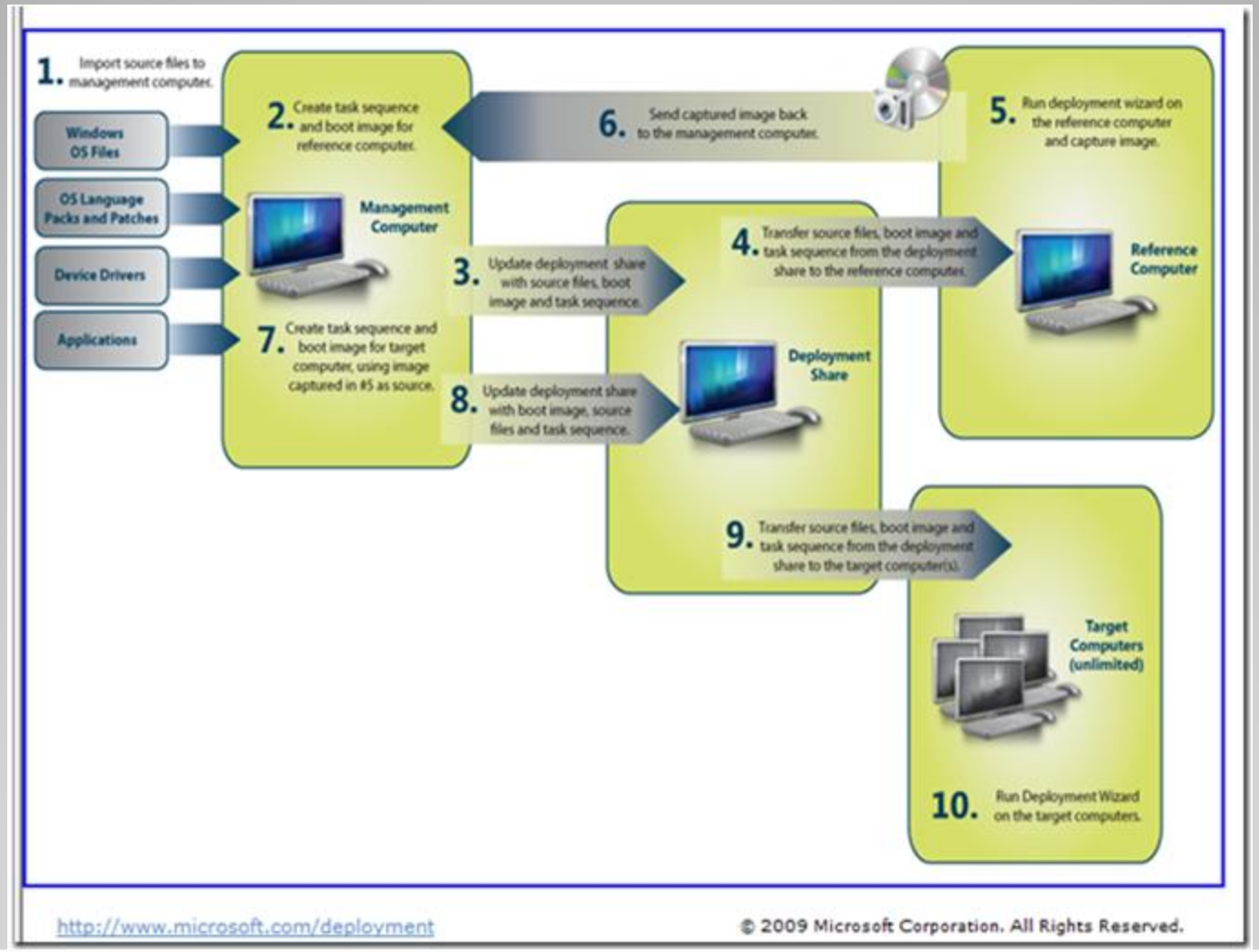
- Can deploy images created with WDS, Windows 7 AIK, or MDT 2010
  - Requires a boot image
- Multicasting with WDS



Deploying Images Using MDT 2010

- Similar procedure to deploy as to create
- Add images to deployment share
- Create task sequences to apply images to target computers
- Thick images – Simple task sequences
- Thin or Hybrid – More scripting required

Deploying Images Using MDT 2010 (cont.)



Performing an LTI Deployment

- Someone at the target computer has to:
  - Boot the computer
  - Run the Deployment Wizard
  - Select task sequence to install Windows 7
  - More interaction may be required depending on the task sequence
- Less interaction at workstation requires more preparation for deployment and vice versa

Using System Center Configuration Manager 2007 (SCCM)

- Required for Zero-touch installation deployment (ZTI)
- Complex network management product
- Can be used to capture and deploy image files in the same basic sequence as LTI
- Uses SCCM tools instead of Deployment Workbench

Using System Center Configuration Manager 2007 (SCCM) (cont.)

- Only use this product for deployment of images if you are already using it
- Requires considerable planning because it has many components and options
- Stores data in a SQL database
- Requires client agent on each computer it manages
- Very expensive product to run, but very powerful

Deploying Windows 7 with SCCM 2007

- Basic steps are the same as for LTI deployment
- SCCM enables you to configure every aspect of the deployment in great detail
- Completely scalable to any size network
- Can create multiple distribution points
- Bare-metal computers can be added to the SCCM database
- Allows workstations to connect to SCCM/MDT server and execute the task sequence that deploys workstation configuration

Skills Summary

- The objectives of a large-scale Windows 7 deployment include:
  - Creation of standardized computing environments
  - Minimized user interaction at the workstation

Skills Summary

- The basic steps of a workstation deployment are:
  - Build a deployment share
  - Perform a reference computer installation
  - Capture an image of the reference computer
  - Boot the target computers
  - Apply the Windows 7 reference computer image

Skills Summary (cont.)

- Tools used to deploy workstations:
  - Windows 7 Automated Installation Kit (AIK)
  - Windows Deployment Services (WDS)
  - Microsoft Deployment Toolkit (MDT) 2010
- Create answer files using the Windows SIM utility, to automate the Windows 7 installation process.
- Modify your image file with DISM.exe tool

Skills Summary (cont.)

- Zero-touch installation (ZTI) deployment requires System Center Configuration Manager 2007 installed on your network.
- SCCM 2007 is a comprehensive network management product that, among many other things, can distribute software to the computers on your network.