# Integrating Kickstart and Windows Deployment Services

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# Deployment Options

- Image Based Deployment
  - Ghost
  - RDS
  - CloneZilla
- Manual
  - Do I need to go into this? Really?
- Kickstart/Seeding/etc

# Deploying Windows Is No Fun

- Image Based Deployment
  - Updates
  - SSID
  - Drivers
  - HALs

# Deploying Windows Gets Better

- Windows Deployment Services
  - Both installer and image based
  - Completely automated
  - Scripted
- Microsoft Deployment Workbench
  - Used to manage installed application
  - Used to manage installation sequences

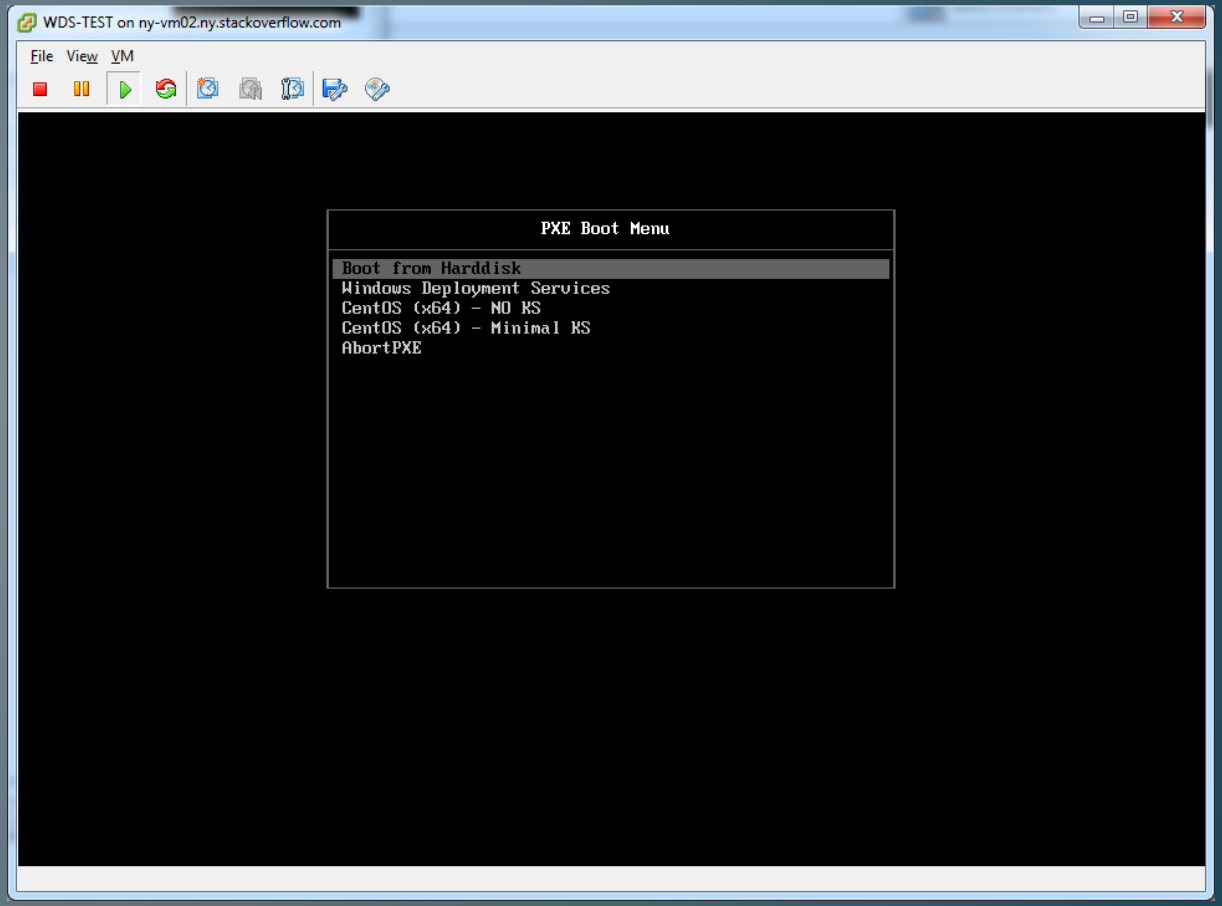
# How Does WDS/MDT Work

- WDS
  - PXE Boot Server
  - Manages OS install Images
- MDT
  - Manages Task Sequences
  - Manages Application Packages

# MDT is where the power is

- Task Sequences
  - Allows you to fully script your install
- Applications
  - Manage install time applications
- Operating Systems
  - Available install images
- Drivers
- Packages
  - Language Packs
  - Security Updates
  - .cab & .msu files
- Advanced Config
  - Database connectivity
  - Selections
  - Media

# The WDS/MDT Process (in pictures)



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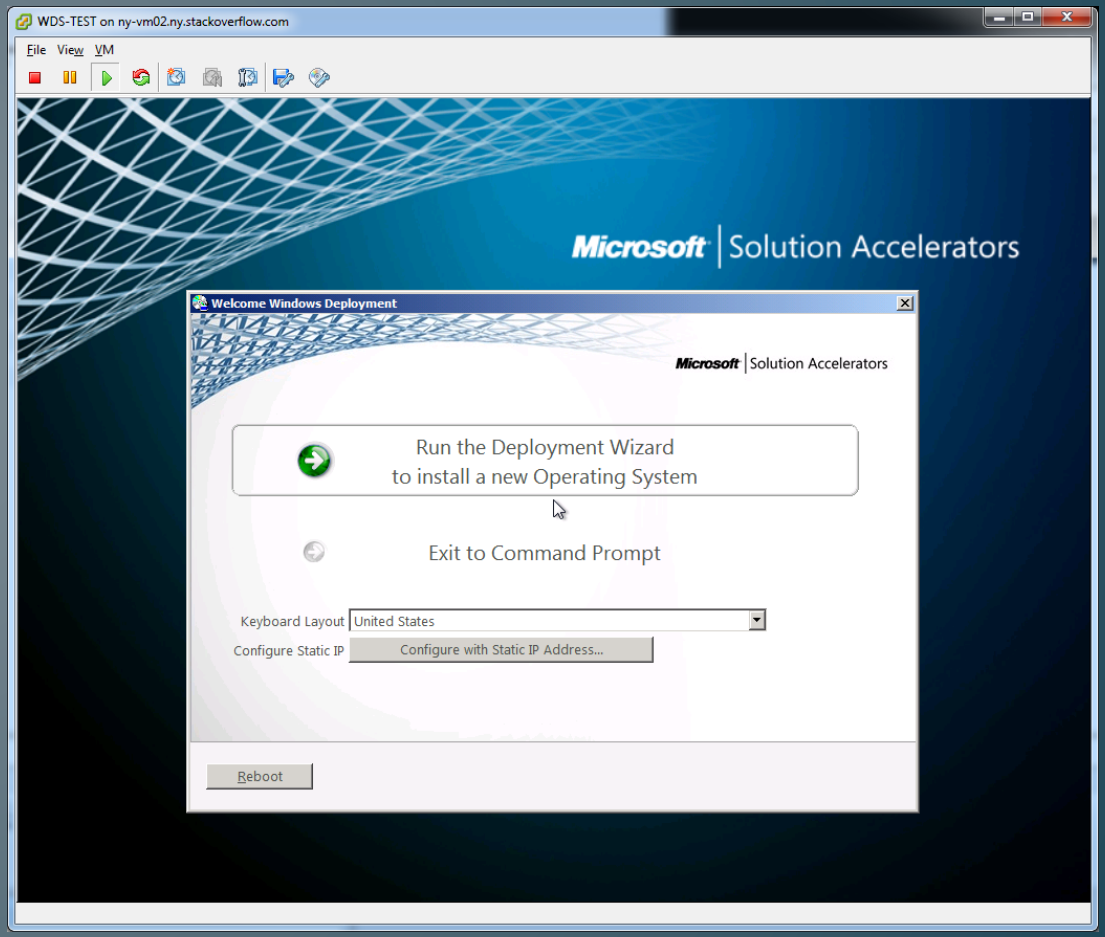

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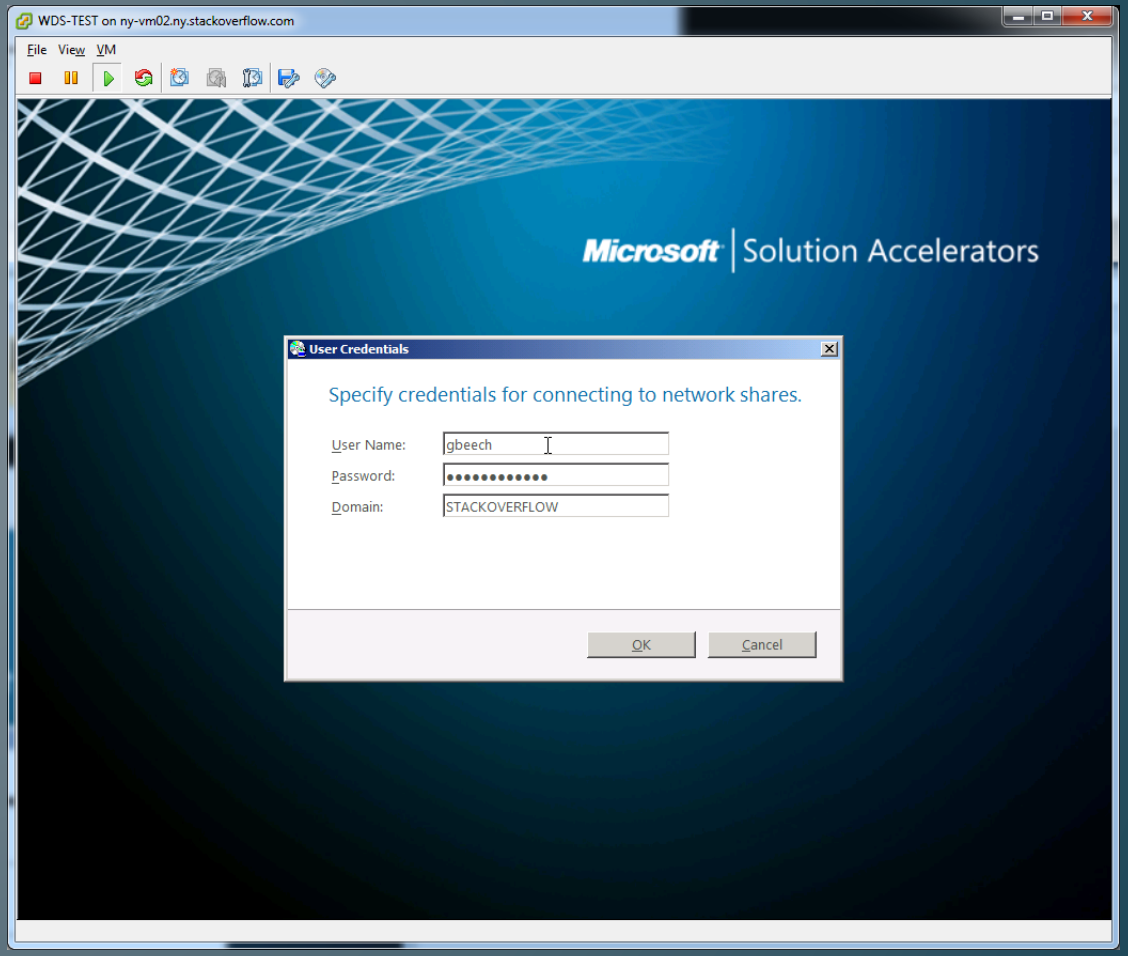

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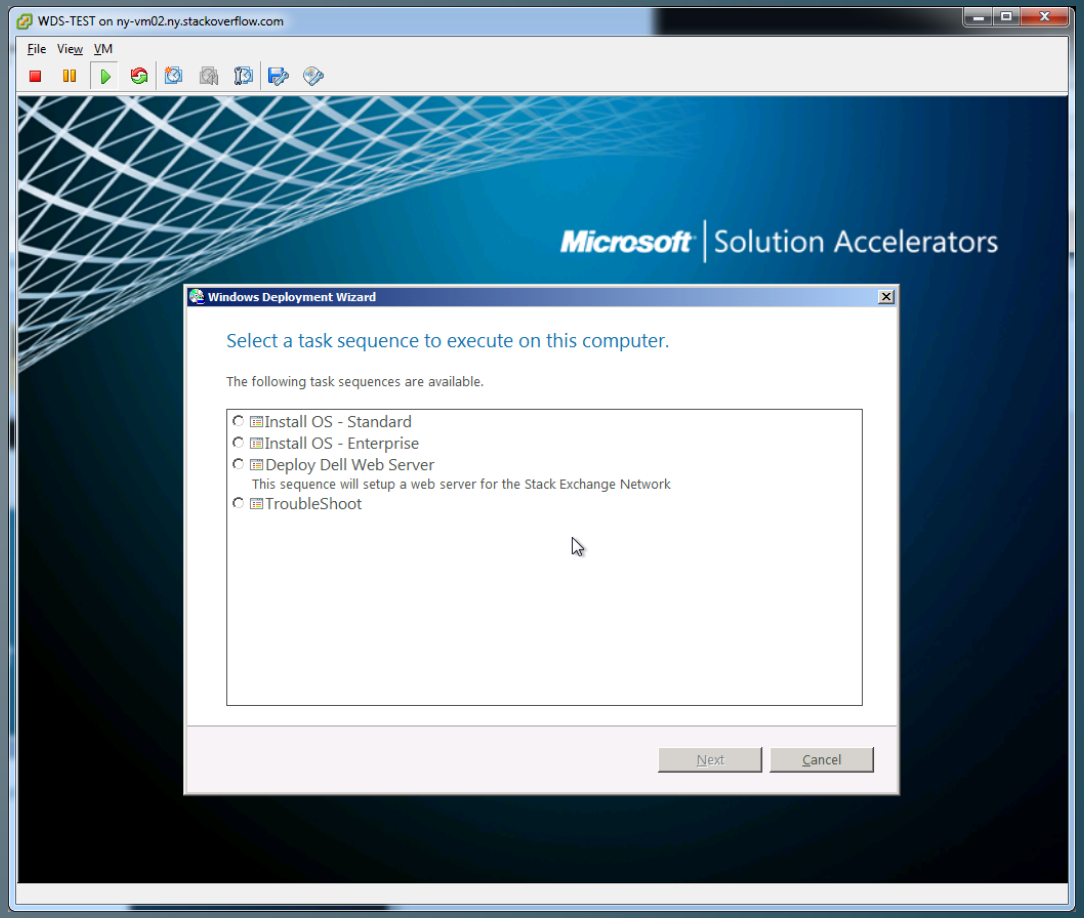

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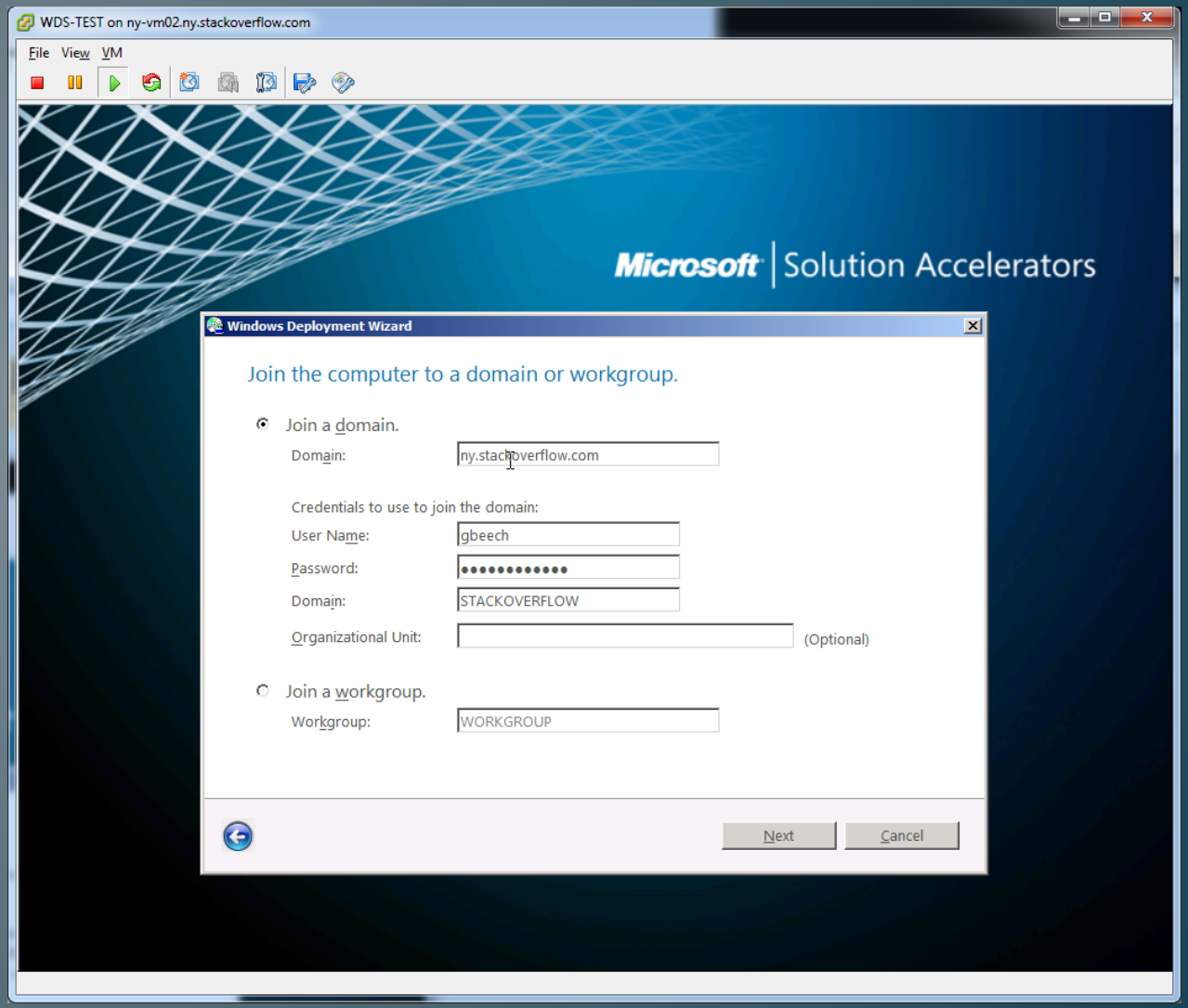

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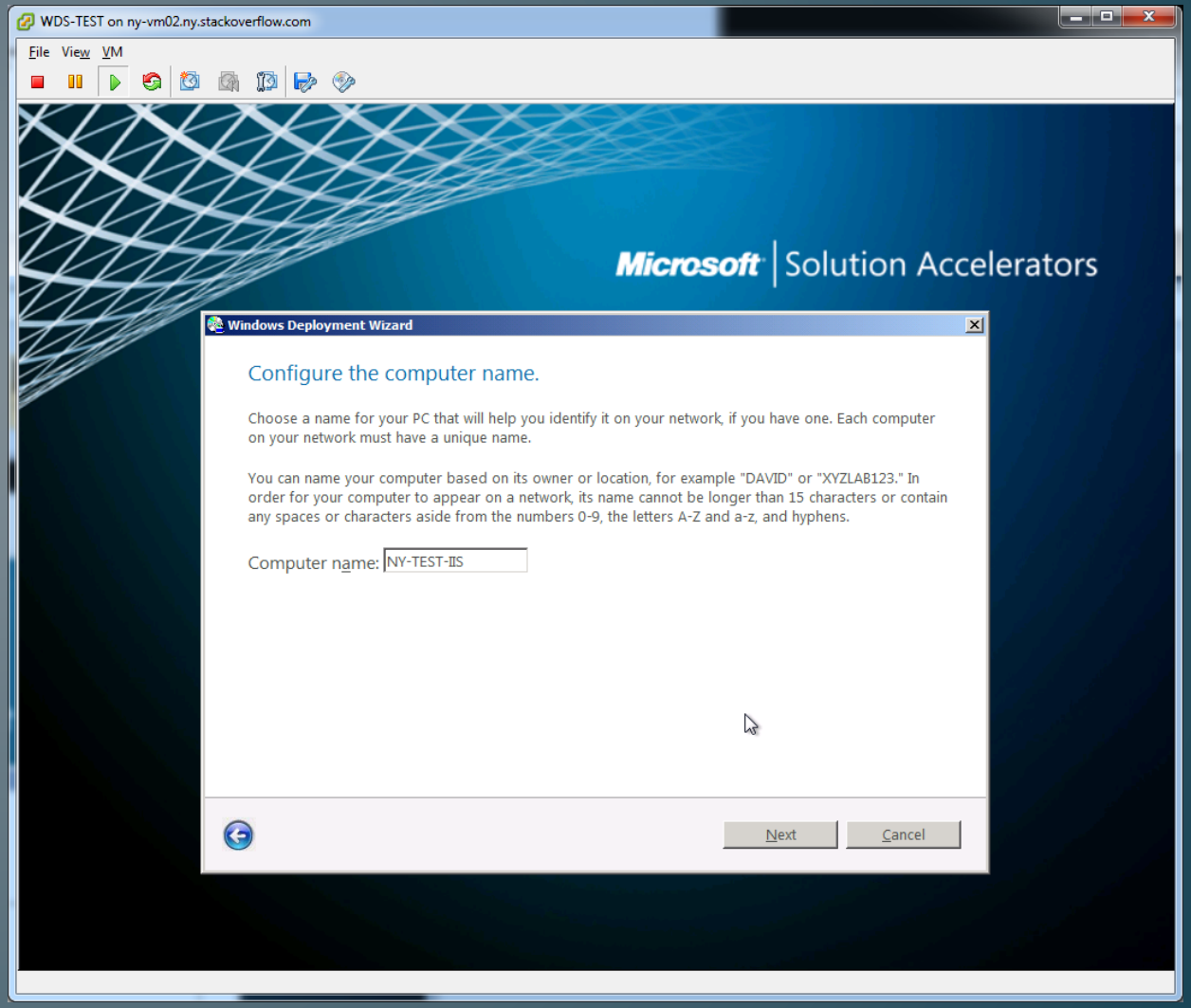

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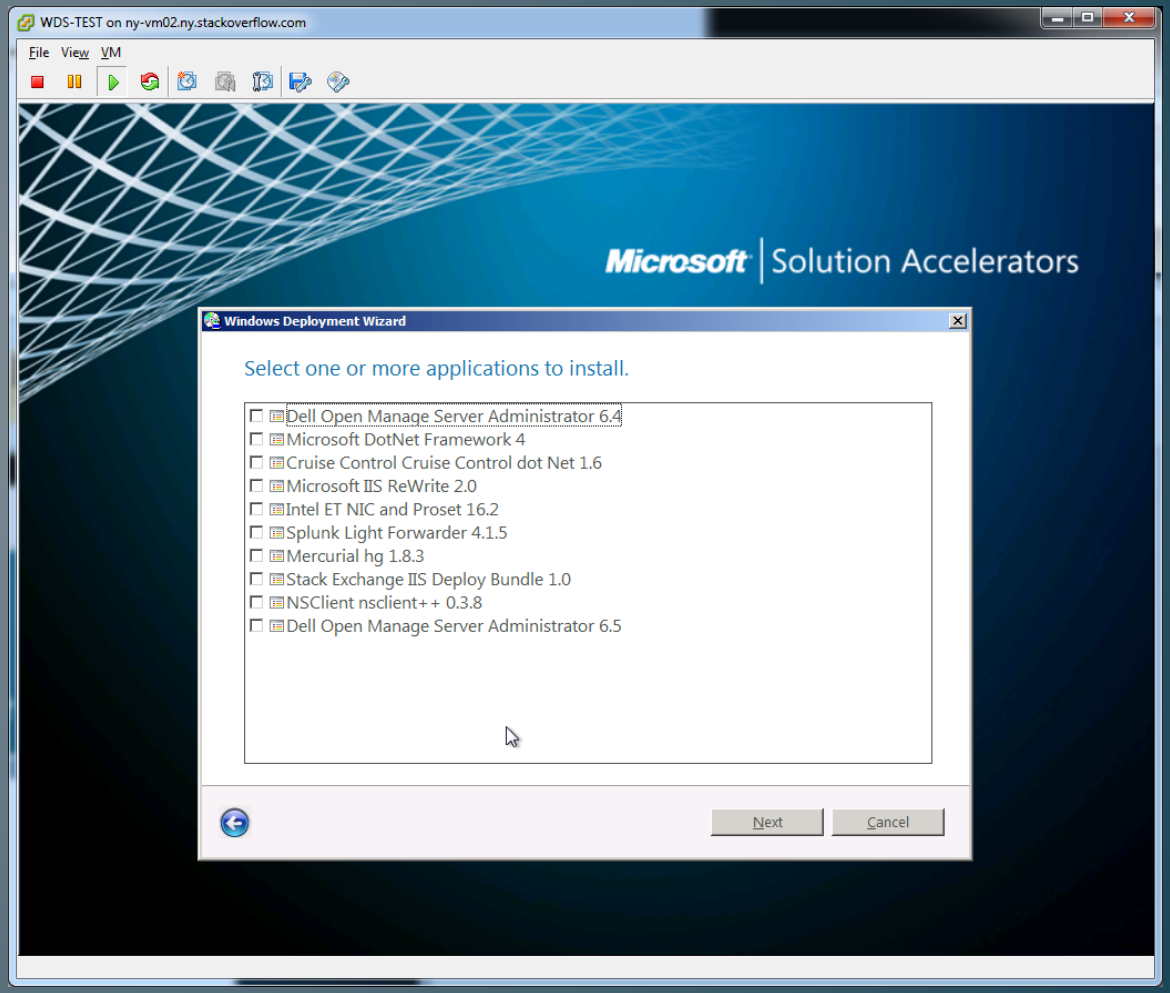

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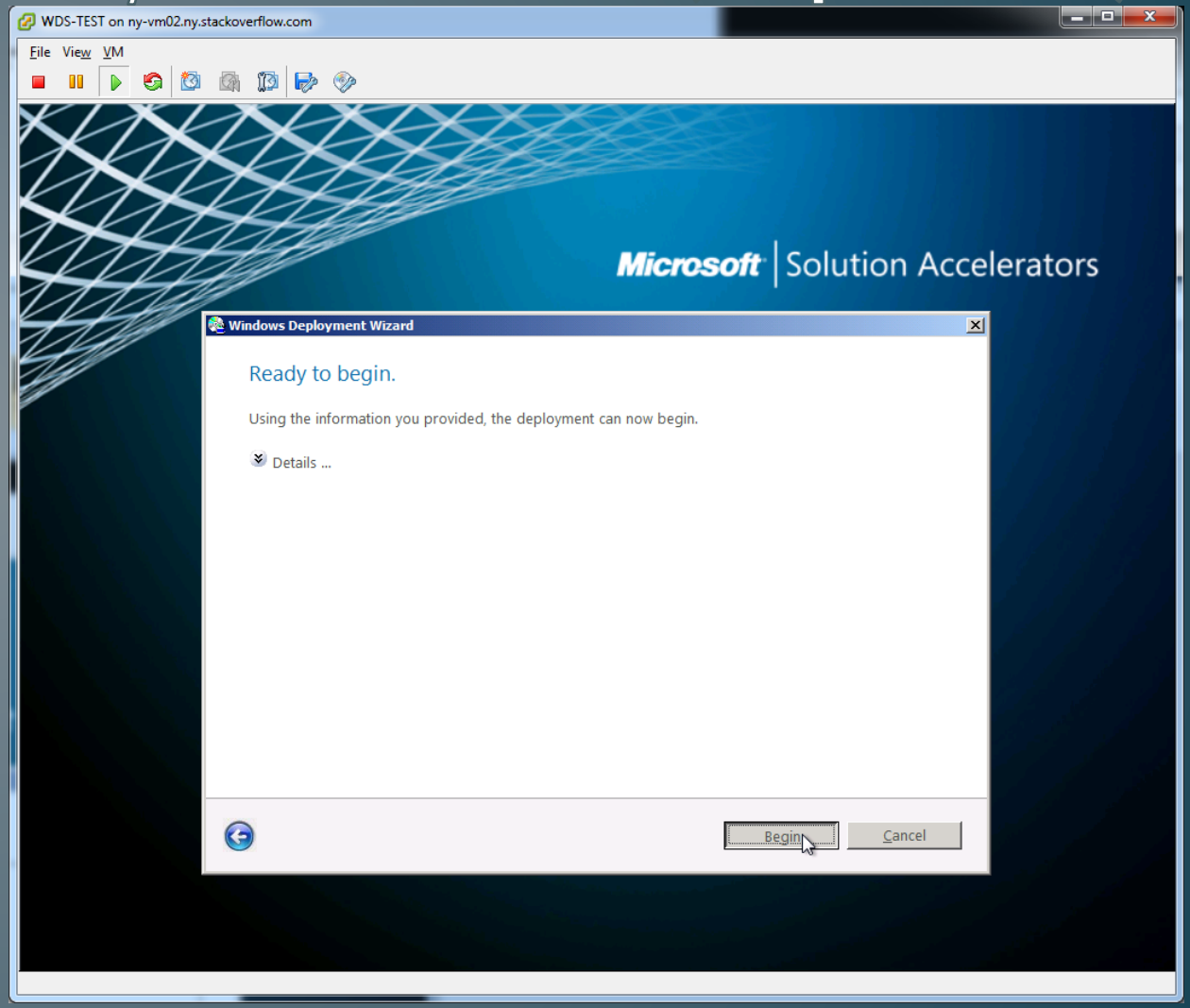

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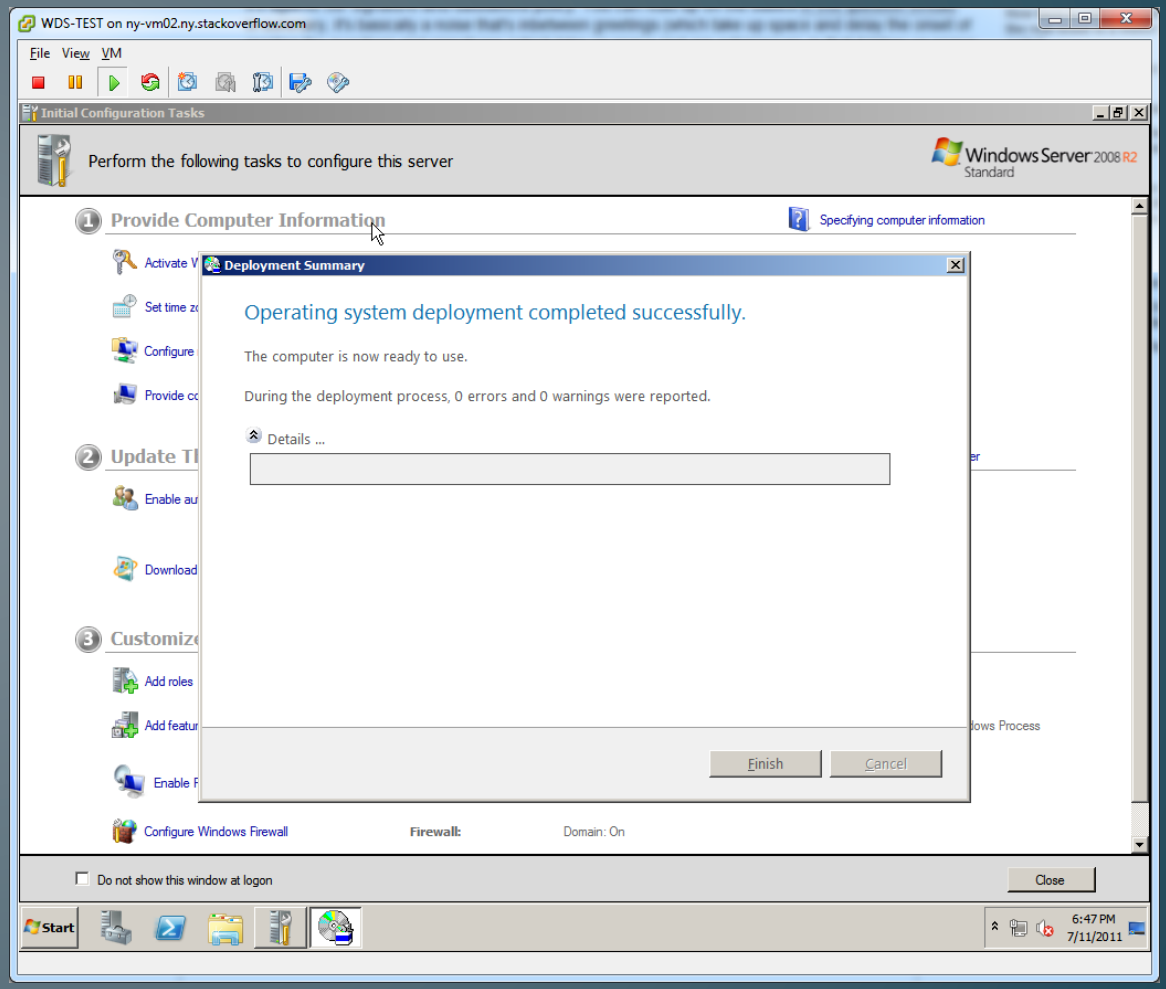


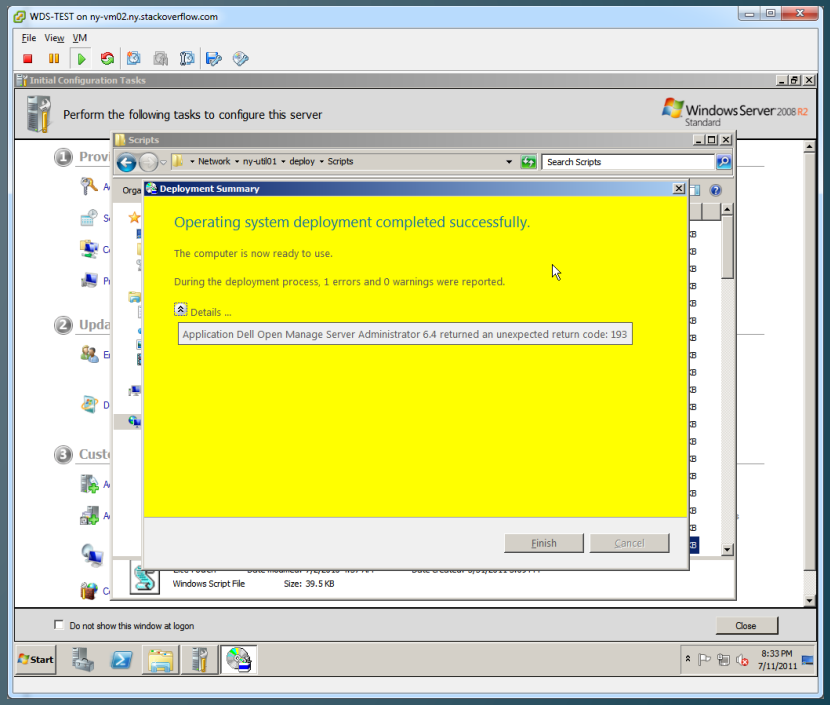
# WDS customsettings.ini

```
[Settings]
Priority=Default
Properties=MyCustomProperty

[Default]
OSInstall=Y
SkipAppsOnUpgrade=YES
SkipCapture=YES
SkipAdminPassword=YES
SkipProductKey=YES
SkipBitlocker=YES
SkipLocaleSelection=YES
KeyboardLocale=en-US
UserLocal=en-US
UILanguage=en-US
SkipTimeZone=YES
TimeZone=085
TimeZoneName=UTC
SLShareDynamicLogging=\\ny.stackoverflow.com\DFSRShare\SysAdmin\Logs\Deploy
```

# On Error … wha?

- WDS error messages are
  - Not helpful
  - Confusing
  - Dumb



# First, lets log

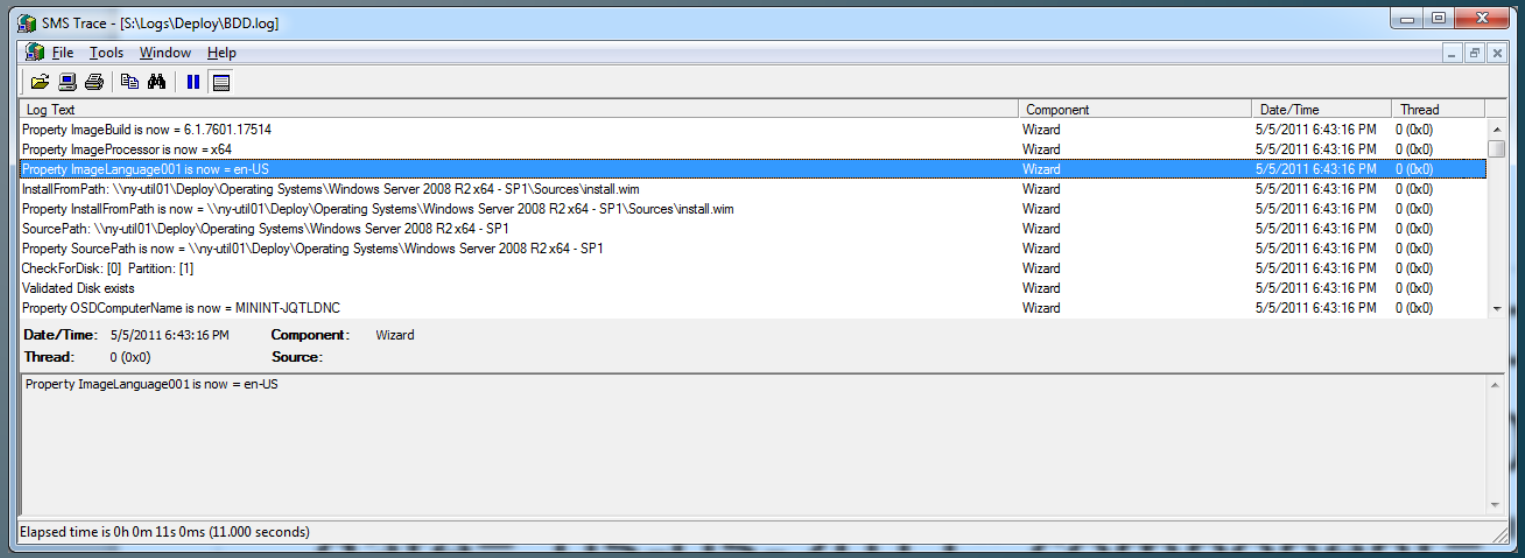
- Turning on WDS logging
  - $DeploymentShare\Control\CustomSettings.ini
    - SLShareDynamicLogging=<Path_to_log>
  - Lets you log every part of the deploy
  - Chatty

# Second, Read

- Reading the log
  - SMS Standard Log format
  - Use Trace32 to read
    - Part of SCCM Toolkit
    - http://www.microsoft.com/download/en/details.aspx?id=9257

# What does the log look like?

- <![LOG[Property ImageLanguage001 is now = en-US]LOG]!><time="18:43:16.000+000" date="05-05-2011" component="Wizard" context="" type="1" thread="" file="Wizard">



# Kickstart

- Used RedHat based distros
- Scripted Deployment
- Flexible
- (somewhat) Easy to get going

# How we Setup Kickstart

- Local Repositories
  - CentOS
  - EPEL
- Served via HTTP
  - Install Files
  - Kickstart files
  - Supporting files

# Kickstart File

```
install
url --url http://ny-man01.ny.stackoverflow.com/centos/5/os/x86_64/
lang en_US.UTF-8
keyboard us
%include /tmp/nic-include
rootpw --iscrypted <encrypted_root_pw>
firewall --enabled --port=22:tcp
authconfig --enableshadow --enablemd5 --enablekrb5
selinux --disabled
timezone --utc Etc/UTC
bootloader --location=mbr --driveorder=sda
# The following is the partition information you requested
# Note that any partitions you deleted are not expressed
# here so unless you clear all partitions first, this is
# not guaranteed to work
clearpart --all --drives=sda
part /boot --fstype ext3 --size=100 --ondisk=sda
part pv.5 --size=0 --grow --ondisk=sda
volgroup VolGroup00 --pesize=32768 pv.5
logvol / --fstype ext3 --name=LogVol00 --vgname=VolGroup00 --size=1024 --grow
logvol swap --fstype swap --name=LogVol01 --vgname=VolGroup00 --size=1000 --grow --
maxsize=18048
firstboot --enable
repo --name=EPEL --baseurl=http://ny-man01.ny.stackoverflow.com/epel/5/x86_64/
services --enabled ntpd,snmpd
reboot
%packages
@base
@core
keyutils
trousers
fipscheck
device-mapper-multipath
firstboot
mercurial
epel-release-5-4
ntp
net-snmp
```

```
%pre
echo "# `grep /proc/net/dev eth| cut -d: -f1 | cut -d' ' -f3` " >>/tmp/nic-include
echo "# auto generated nic setup" > /tmp/nic-include
for nic in `grep eth /proc/net/dev | cut -d: -f1 | cut -d' ' -f3`
do
        if [ "$nic" = "eth0" ]
        then
                echo "network --device $nic --bootproto query " >> /tmp/nic-include
        else
                echo "network --device $nic --onboot no --bootproto dhcp" >> /tmp/nic-
include
        fi
done

%post --log /root/ks-post.log
wget -O- http://10.7.0.50/kickstart/generic-configs/get_files.sh | /bin/bash
cp /tmp/nic-include /root/
/usr/sbin/groupadd admins
/usr/sbin/groupadd ssh_permit
/usr/sbin/useradd -G admins,ssh_permit gbeech
/usr/sbin/useradd -G admins,ssh_permit kbrandt
```

# Getfiles.sh

```
wget -O /etc/krb5.conf http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/kerberos/krb5.conf
wget -O /etc/ssh/sshd_config http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/ssh/secure/sshd_config
wget -O /etc/snmp/config/snmpd.conf http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/snmp/configsnmpd.conf
wget -O /usr/bin/check_dns.sh http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/snmp/scripts/check_dns.sh
wget -O /usr/bin/snmp_dns_stats.sh http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/snmp/scripts/snmp_dns_stats.sh
wget -O /usr/bin/snmp_free.sh http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/snmp/scripts/snmp_free.sh
wget -O /usr/bin/snmp_mB_free.sh http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/snmp/scripts/snmp_mB_free.sh.sh
wget -O /usr/bin/snmp_mB_used.sh http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/snmp/scripts/snmp_mB_used.sh
wget -O /usr/bin/snmp_percent_mem_used.sh http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/snmp/scripts/
snmp_percent_mem_used.sh
wget -O /etc/sudoers http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/sudo/sudoers
wget -O /etc/ntp.conf http://ny-man01.ny.stackoverflow.com/kickstart/generic-configs/ntp/ntp.conf.ny
```

# Fun Side Note

- Windows PXE to usable – 2 hours
- Centos PXE to usable – 30 mins

# Two PXE procedures … One Network

- Don’t want to run multiple networks for builds
- Linux PXE images aren’t compatible with WDS

# SYSLINUX to the Rescue

- Windows Version of PXELinux
- Replace Windows PXE image with PXELINUX
- SYSLINUX Wiki has a great guide to dropping PXELINUX in
  - http://syslinux.zytor.com/wiki/index.php/WDSLINUX

# WDSLINUX Instructions

- Extract core\pxelinux.0 com32\menu\vesamenu.c32 and com32\modules\chain.c32 from the syslinux download and put it on your WDS server in $WDS-ROOT\Boot\x86\ and $WDS-ROOT\Boot\x64\(substitute WDS-ROOT for where your WDS root folder is)
- In the $WDS-ROOT\Boot\$ARCH folders Rename pxelinux.0 to pxelinux.com
- Create a folder named pxelinux.cfg (in the $WDS-ROOT\Boot\x86\ and $WDS-ROOT\Boot\x64\ folder)
- In the pxelinux.cfg folder create a text file named default and add the following to it (you can substitute MyMenuBackgroundPicture640x480.jpg for any image you want as your menu background)
- Make a copy of pxeboot.n12 and name it pxeboot.0
- make a copy from abortpxe.com and rename it to abortpxe.0
- Create a folder named Linux (in the $WDS-ROOT\Boot\x86\ and $WDS-ROOT\Boot\x64\ folder)
    - Open the Windows Deployment Services Console,
    - Right Click on your Server and Select Properties,
    - From the Boot Tab change the default boot program for your architecute (x86 and x64 as well) to Boot \x86\pxelinux.com and Boot\x64\pxelinux.com respectively
    - **NOTE:** In the WDS included in Windows Server 2008 R2 the UI has changed and you have to use the command line to set the the default boot program.
    - Thus to change the boot program to pxelinux.com, the wdsutil command line tool has to be used: (do this also for x64 if you have x64 clients also)
        - wdsutil /set-server /bootprogram:boot\x86\pxelinux.com /architecture:x86
        - wdsutil /set-server /N12bootprogram:boot\x86\pxelinux.com /architecture:x86

Source: http://syslinux.zytor.com/wiki/index.php/WDSLINUX

# PXELINUX default config

```
DEFAULT      vesamenu.c32
PROMPT       0
NOESCAPE     0
ALLOWOPTIONS 0
# Timeout in units of 1/10 s
TIMEOUT 300
MENU MARGIN 10
MENU ROWS 16
MENU TABMSGROW 21
MENU TIMEOUTROW 26
MENU COLOR BORDER 30;44                    #20ffffff #00000000 none
MENU COLOR SCROLLBAR 30;44                 #20ffffff #00000000 none
MENU COLOR TITLE 0                                   #ffffffff #00000000 none
MENU COLOR SEL   30;47                     #40000000 #20ffffff
MENU BACKGROUND pxe_bg.jpg
MENU TITLE PXE Boot Menu
#---
LABEL local
MENU DEFAULT
MENU LABEL Boot from Harddisk
LOCALBOOT 0
Type 0x80
#---
LABEL WDS - NY-UTIL01
MENU LABEL Windows Deployment Services
KERNEL pxeboot.0
#---
LABEL CentOS (x64) - NO KS
KERNEL /Linux/CentOS/5.6/vmlinuz
append initrd=/Linux/CentOS/5.6/initrd.img ramdisk_size=100000 ksdevice=eth1 ip=dhcp method=http://ny-man01.ny.stackoverflow.com/centos/5/os/x86_64
#---
LABEL CentOS (x64) - Minimal KS
KERNEL /Linux/CentOS/5.6/vmlinuz
append initrd=/Linux/CentOS/5.6/initrd.img ks=http://ny-man01.ny.stackoverflow.com/kickstart/minimal.ks ramdisk_size=100000 ksdevice=eth1 ip=dhcp method=http://ny-
man01.ny.stackoverflow.com/centos/5/os/x86_64
#---
LABEL Abort
MENU LABEL AbortPXE
Kernel                    abortpxe.0
#---
```

# After the Install

- GPOs
- Puppet
- Intel Nic conifig
  - Docs suck, have to figure out how to script this

# Conclusions

- You CAN have a fully automated – non-image-based Windows deploy
- You don't need to run multiple PXE servers
- WDS … SO much better than RDS
- Linux deployment solutions still kick windows ass

# Brought to you by the Letter S

- WE have a conference!
  - Scalability.serverfault.com
- Oh right, we are looking for a good Admin to expand our SysAdmin team as well