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# Five Infrastructure Changes That Will Boost Performance for the Windows Client

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# Introduction

## About me

- ② Windows client deployment and management
- ② Microsoft MVP for 3 years+



# Overview

Hardware upgrades  
Read Only Domain Controllers  
Performance assessment!  
X64 platform  
BranchCache  
WAN Optimizer  
SMB  
Services tuning  
Network switch upgrade  
GPO & Script optimizing  
Server infrastructure  
Gigabit network  
Drivers and apps causing slow boot and logon  
Registry tweaks  
Hotfixes  
UEFI  
Windows Server 2008 R2  
Autostarting applications  
Remote Desktop Services  
Windows Performance Toolkit  
Group policies and preferences  
Memory optimizing

# Performance impact

What does performance from a user perspective mean?

- ⌵ Slow machine startup
- ⌵ Slow login
- ⌵ Slow applications
- ⌵ Slow file transfers
- ⌵ + all these factors sum up even worse at branch offices or working via remote access

# Slow machine startup and logon

## Scenario

- ⌚ Start and boot times can always be improved
- ⌚ Figuring it all out

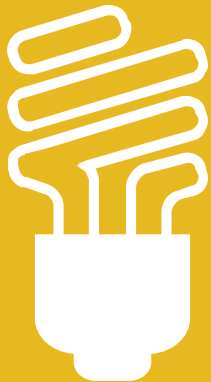
# Slow machine startup and logon

## Assess performance

- ⌵ Windows Performance Toolkit
- ⌵ Used to make performance measurements for:
  - ⌵ Boot
  - ⌵ Shutdown
  - ⌵ and much more...



**demo**



# **Assess the start and boot performance**

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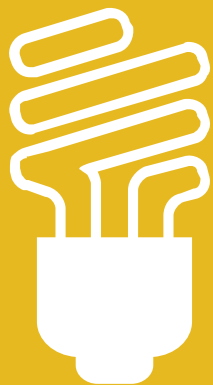
# Slow machine startup and logon

## Remediation

- ④ Group Policy and script optimization
  - ④ Synchronous vs asynchronous GPO processing
  - ④ Remove unnecessary GPOs
  - ④ Cleanup old scripts and convert to GPO Preferences
- ④ Domain Controllers and file servers



**demo**



# Optimize GPO and script infrastructure

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# Slow machine startup and logon

## Remediation

- ④ Recommended Windows 7 Post SP1 hotfixes:
  - ④ You experience a long domain logon time in Windows 7 or in Windows Server 2008 R2 after you deploy Group Policy preferences to the computer  
<http://support.microsoft.com/kb/2561285>
  - ④ Unexpectedly slow startup or logon process in Windows Server 2008 R2 or in Windows 7 (WMI issue)  
<http://support.microsoft.com/kb/2617858>

# Slow local applications

## Scenario

- ⌚ Applications behaving slow
  - ⌚ Client/Server application
  - ⌚ Any application with network interaction

# Slow local applications

## Remediation

- ④ Upgrade application servers to Windows Server 2008 R2
  - ④ Benefit of network improvements
  - ④ SMB 2.x

# Slow remote applications

## Scenario

- ⌚ Remote applications are running slow (via TS/RDS and also on VPN)
  - ⌚ Lagging graphics
  - ⌚ Application appear to hang
  - ⌚ Overall bad user experience

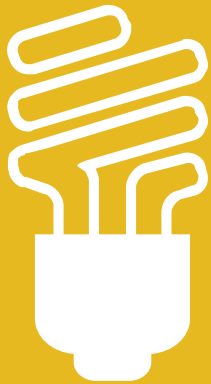
# Slow remote applications

## Remediation

- ④ Remote Desktop Services on Windows Server 2008 R2
  - ④ Full use of RDP improvements
  - ④ Switch from TS/RDS to RemoteApps
- ④ Tweak the RDP settings



**demo**



# Remote Desktop performance tweaks

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# Slow file handling and transfer

## Scenario

- ⌚ Slow access to file server resources on network shares
- ⌚ Also impacts roaming user profiles and folder redirection

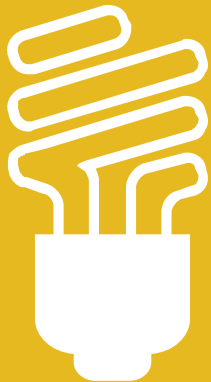
# Slow file handling and transfer

## Remediation

- ④ Make sure file servers are running Windows Server 2008 R2
  - ④ SMB 2.x improvements
- ④ Recommended hotfix
  - ④ Slow performance when you browse the My Documents folder in the document library in Windows 7 or in Windows Server 2008 R2  
<http://support.microsoft.com/kb/2690528>



**demo**



## **SMB 2.1 performance**

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# Branch Offices

## Scenario

- ⌚ Performance is generally very bad at branch offices
  - ⌚ Suffer from most issues talked about:  
Really slow machine start and logon, file and web transfer speeds and applications not working well.

# Branch Offices

## Remediation #1

- ④ BranchCache to speed things up, with support for:
  - ④ SMB and HTTP(S) traffic, but also:
    - ④ SharePoint 2010
    - ④ System Center Configuration Manager Client 2007 SP2+
    - ④ Windows Server Update Services
    - ④ Exchange OAB

# Branch Offices

## Remediation #2

- ⌵ Windows Server 2008 R2
  - ⌵ SMB 2.x for optimized performance

# Branch Offices

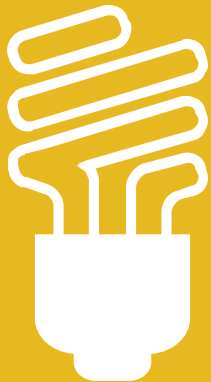
## Remediation #3

- ④ Improved interoperability between the BranchCache feature and the Offline Files feature in Windows 7 or in Windows Server 2008 R2

<http://support.microsoft.com/kb/2675611>



**demo**



## **BranchCache assessment**

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# Information is key

## Create a spirit

- ⌚ Make sure to benchmark and present stats to users
  - ⌚ Remember that performance is subjective

# Microsoft Assessment

## For Enterprise customers

- ④ Tool that verifies overall performance, including bad drivers, apps that are causing the machine to start slowly etc
  - ④ WDRAP (Risk and health Assessment Program for Windows Desktop)
  - ④ Microsoft IT Case Study:  
<http://technet.microsoft.com/en-us/library/hh708771.aspx>

# Summary

## Key takeaways

- ④ Assess boot and login performance
- ④ Optimize GPOs and scripts
- ④ Upgrade key servers to Windows Server 2008 R2
- ④ Tweak the RDP settings
- ④ Implement BranchCache for branch offices
- ④ Apply recommended hotfixes for Windows 7 SP1



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