

# Windows 7 and Windows Server 2008 R2

## What can Developers Leverage?

### Dave Ball

# Windows 7 and Windows Server 2008 R2

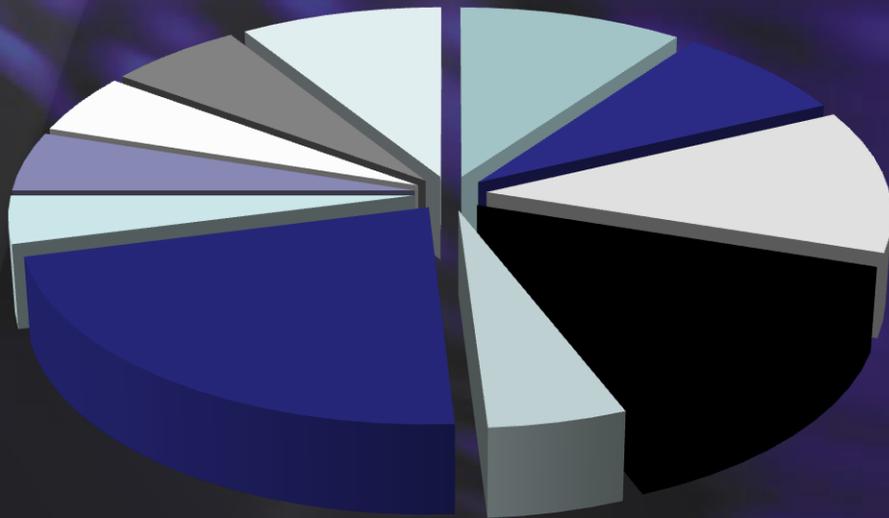
Thanks to Stephen L. Rose  
and Joey Snow for the  
inspiration & enthusiasm

# Windows 7 & Server 2008 R2

## What I Could Cover

- *Legacy Code – Compatibility & XP Mode*
- *UI – Aero & UAC*
- *Security – BitLocker & AppLocker*
- *Remote Users – Direct Access & RDS*
- *Desktop Support – PowerShell & PSR*
- *Network Applications – PowerShell & GPOs*
- *Other Cool Stuff – IE 8, Server Core, File Classification Service*

# What software have you currently developed for XP & Vista?



- Win32 \ XP
- Pre Delphi 2009
- LAN
- WAN
- Workgroup
- ASP.Net
- Task Oriented
- Dist Users
- System Apps
- EM
- Netbooks



# Windows Server OS Release Cadence



# Windows 7 Available SKU

## Consumers

Windows® 7 Home Premium

Standard consumer SKU, providing full functionality on the latest hardware, easy ways to connect, and a visually rich environment

## Businesses

Windows® 7 Professional

Business-focused SKU for small and lower mid-market companies and users who have networking, backup, and security needs and multiple PCs or servers. Available through OEM and retail channels

## Specialized

### Enthusiasts

Windows® 7 Ultimate

No compromise consumer SKU for those who want all Windows features, including business

### Enterprises

Windows® 7 Enterprise

Business-focused SKU for managed environments, advanced data protection, networking and security needs. Available through SA agreement

### Emerging Markets

Windows® 7 Home Basic

Windows® 7 Starter

Entry-level OEM SKU in all markets for cost-conscious consumers

# Windows 7 What's in the box?

Key Features	Windows® 7 Starter	Windows® 7 Home Basic (EM only)	Windows® 7 Home Premium	Windows® 7 Professional	Windows® 7 Enterprise/ Windows® 7 Ultimate
Improved Windows® Taskbar & Jump Lists	√	√	√	√	√
Windows® Search	√	√	√	√	√
Join a HomeGroup	√	√	√	√	√
Windows Media® Player	√	√	√	√	√
Back-up & Restore	√	√	√	√	√
Enhanced Media Playback	√	√	√	√	√
Action Center	√	√	√	√	√
Device Stage™	√	√	√	√	√
Enhanced home media streaming, including Play To	√	√	√	√	√
Bluetooth support	√	√	√	√	√
Fax & Scan	√	√	√	√	√
Basic "inbox" games	√	√	√	√	√
Credential Manager	√	√	√	√	√
Application Capabilities	Up to 3 concurrent programs	Unlimited	Unlimited	Unlimited	Unlimited
Live Thumbnail Previews from Taskbar		√	√	√	√
Fast User Switching		√	√	√	√
Create ad-hoc wireless networks		√	√	√	√
Internet Connection Sharing		√	√	√	√
Multi-monitor support		√	√	√	√
Windows Mobility Center (w/o presentation settings) *		√	√	√	√
Aero® Glass & advanced Window navigation			√	√	√
Aero® Background			√	√	√
Windows® Touch (Multi-touch and handwriting support)			√	√	√
Create a HomeGroup			√	√	√

# Windows 7 What's in the box?

Key Features	Windows® 7 Starter	Windows® 7 Home Basic (EM only)	Windows® 7 Home Premium	Windows® 7 Professional	Windows® 7 Enterprise/ Windows® 7 Ultimate
Windows® Media Center			√	√	√
DVD Video playback and authoring			√	√	√
Premium “inbox” games			√	√	√
Snipping Tool, Sticky Notes, Windows® Journal			√	√	√
Windows® Sideshow (Auxiliary Display)			√	√	√
Location Aware Printing				√	√
Domain Join & Group Policy Controls				√	√
Remote Desktop Host				√	√
Advanced Back-up (Network & Group Policy)				√	√
Encrypting File System				√	√
Windows® Mobility Center*: Presentation Mode				√	√
Offline Folders				√	√
BitLocker™ & BitLocker To Go™					√
AppLocker™					√
DirectAccess					√
BranchCache™					√
MUI Language Packs					√
Enterprise Search Scopes					√
VDI Enhancements^					√
Boot from VHD					√

# Windows Server 2008 R2 What's New

## Virtualization

- ▶ Hyper-V™ with Live Migration
- ▶ Hot Add/Remove VM Storage
- ▶ Remote Desktop Services

## Management

- ▶ Power Management
- ▶ Windows PowerShell
- ▶ AD Administrative Center
- ▶ Best Practices Analyzer

## Web

- ▶ IIS 7.5
- ▶ ASP .NET on Server Core
- ▶ Enhanced FTP and WebDAV
- ▶ Administration Modules & Cmdlets

## Solid Foundation for Enterprise Workloads

### Scalability and Reliability

- ▶ 256 Core Support
- ▶ Componentization
- ▶ Boot from SAN or VHD
- ▶ Support for Solid-state Devices
- ▶ File Classification Infrastructure

### Better Together with Windows 7

- ▶ DirectAccess™
- ▶ BranchCache™
- ▶ Enhanced Group Policies
- ▶ RemoteApp & Desktop Connections

# Windows 7 For Legacy XP Apps

- Compatibility Mode
  - Much more robust than Vista Implementation
- Windows XP Mode
  - Application Virtualisation - Download
  - Only on Professional, Enterprise & Ultimate SKUs

# Windows 7 Windows XP Mode

- Part of Virtualization Strategy
- Effectively 'App Level Virtual PC'
- Requires Hardware Virtualization Support
  - Including BIOS Switch !
- Cannot Co-Exist with Second Hypervisor

# Windows 7 Windows XP Mode

- Fix for the pre-Delphi 2010 Issues in Vista
- AMD CPUs need to be 'Business Class' 
- Intel CPUs need VT-Enable

# Windows 7

## Example of Dell Hardware Options

### SELECT MY PROCESSOR

 Help Me Choose

- Intel® Core™ 2 Quad Q9850 (3.0GHz, 12M L2Cache, 1333FSB)  
[add \$380]
- Intel® Core™ 2 Quad Q9550 (2.83GHz, 12M L2Cache, 1333FSB)  
[add \$340]
- Intel® Core™ 2 Quad Q9400 (2.66GHz, 6M, L2Cache, 1333FSB)  
[add \$230]
- Intel® Core™ 2 Quad Q8200 (2.66GHz, 4M, L2Cache, 1333FSB)  
[add \$130]
- Intel® Core™ 2 Duo E8500 (3.16GHz, 6M, L2Cache, 1333FSB)  
[add \$90]
- Intel® Core™ 2 Duo E7400 (2.8GHz, 3M, L2Cache, 1066FSB)  
[Included in Price]

Processors in red do not support Intel-VT.

Intel then announced that it will update five of its processors, in order to add support for Intel Virtualization Technology. The CPUs which will get their virtualization active are the Core 2 Quad Q8300, the Core 2 Duo E7500 and E7400, and the Pentium E5400 and E5300.

The VT-enhanced versions of the mentioned chips started being delivered on June 12 2009 and since they feature new S-spec and MM numbers they may require a BIOS update to enable the virtualization technology – CHECK THE BIOS.

# Windows 7 User Enhancements

- UI Updates
- Security Enhancements
- Remote Working Improvements

# Windows 7 UI Enhancements

- Aero Updates
- User Access Control
- Desktop Improvements

# Windows 7 UI Aero Enhancements

- Aero Peek
  - Right side of Taskbar 'hides' all open apps (Show Desktop)
  - Hover over thumbnail in Taskbar brings to top
- Aero Snap
  - Auto focus Apps by dragging to edge of screen
- Aero Shake
  - Allows you to focus on a specific app, select it and shake the mouse

# Windows 7 UI UAC Enhancements

- Levels for UAC
  - From Always Notify
  - To Never Notify
  - Only Available if holding Administrator Permissions
- Right Click on EXE & Run As Administrator
  - Overrides 'Silent' UAC block

# Windows 7 UI Desktop Enhancements

- Taskbar More Functional
  - Live Preview
  - Even Running Video
- Gadgets 'Run Free'
  - Sidebar has gone

# Windows 7 Security Enhancements

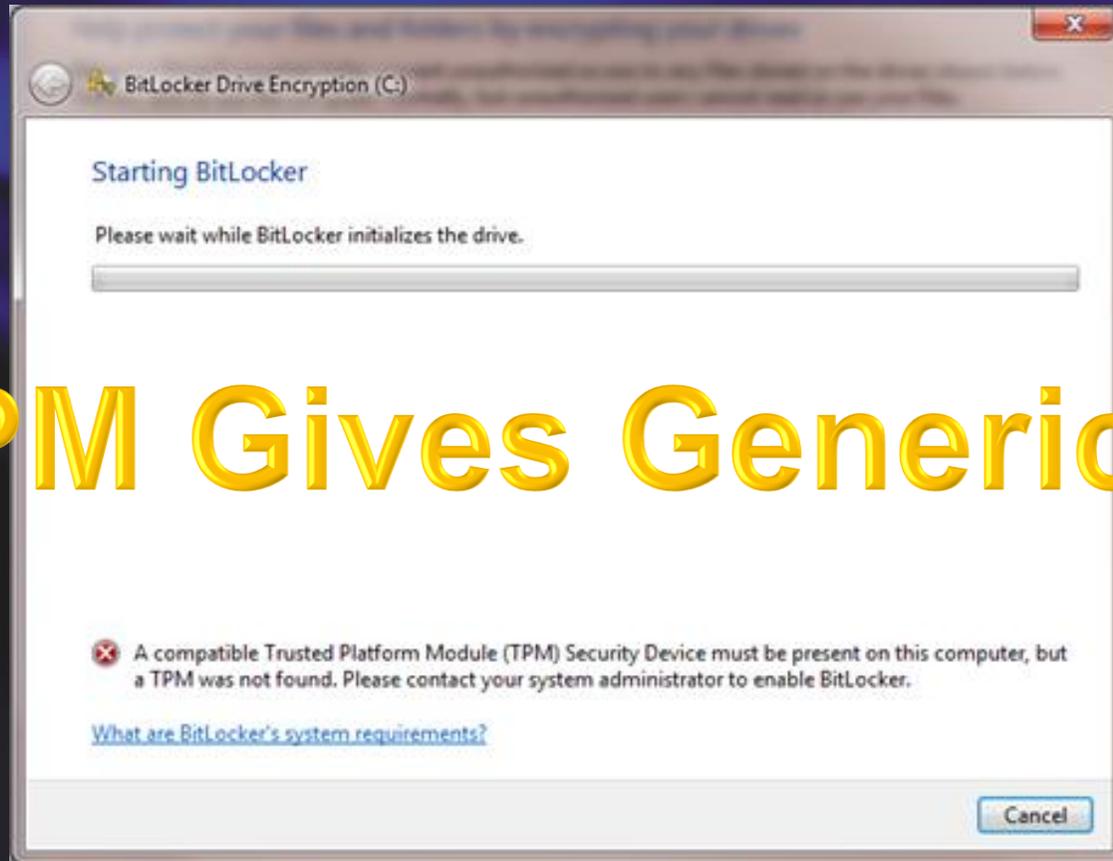
- BitLocker
- BitLocker to Go
- AppLocker

# Windows 7 Security

## BitLocker

- Requires Drive Re-Configuration
  - Watch Out for Vendor 'Recovery Partitions'
- Requires Hardware Features
  - TPM or USB Key to store Private Keys
  - Co-exist issues with FDE Hard Drives (TPM clash)

# Windows 7 Security BitLocker



## No TPM Gives Generic Error

# Windows 7 Security

## BitLocker to Go

- Secures Removable Devices
  - USB, SD
- Requires BitLocker Key Storage
- Recovery Keys in Active Directory \ GPO

# Windows 7 Security

## AppLocker

- Update to Software Restriction Policies
  - Domain or Local Control via GPOs
- Enforces Software Builds Allowed to Run
  - By Digital Signature or other Parameters
  - Need to Sign Apps to gain full advantage

# Windows 7 Remote Working Enhancements

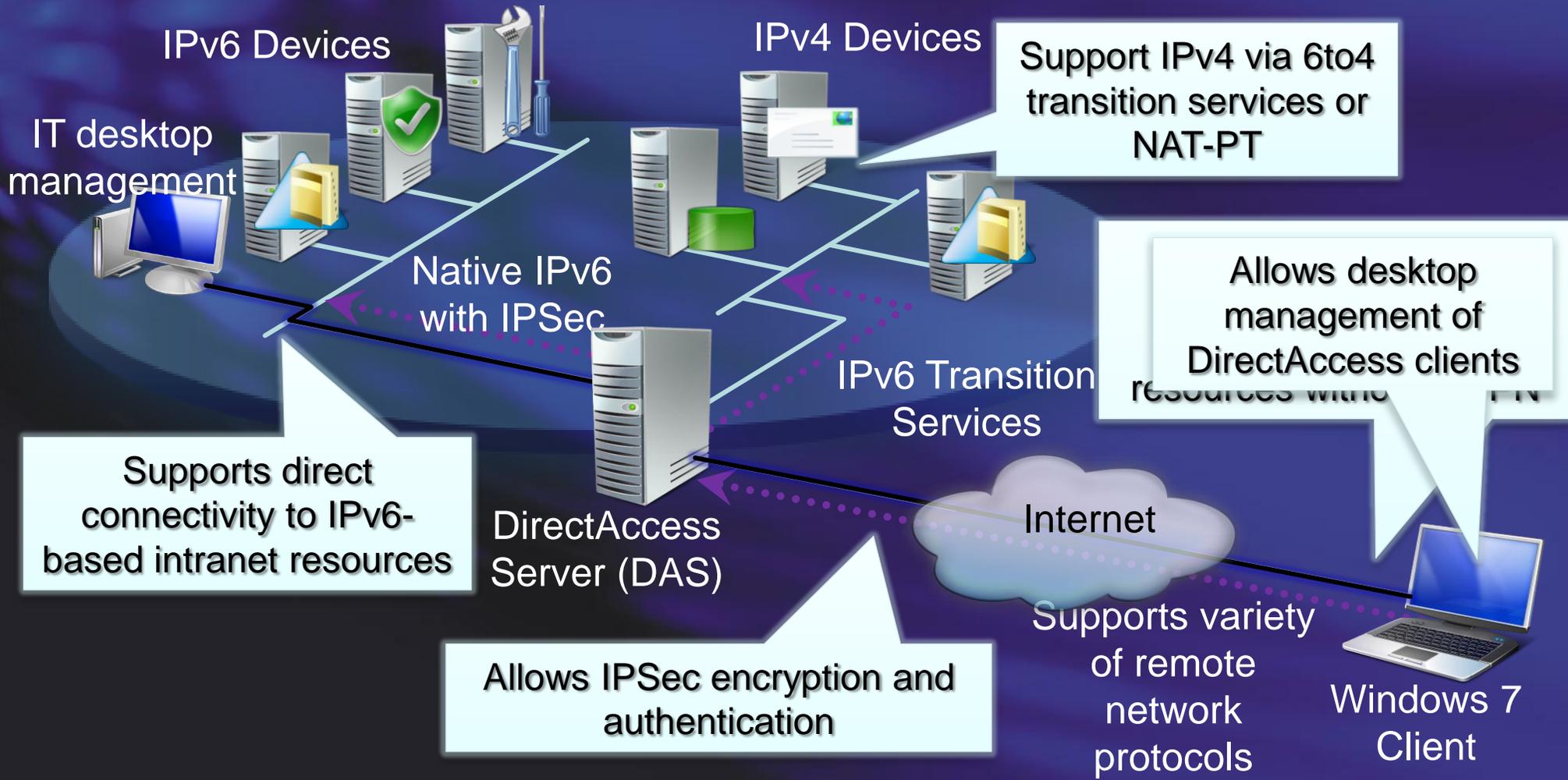
- Direct Access
- Branch Cache
- Remote Desktop Services

# Windows 7 & Server 2008 R2

## Direct Access

- Always Live 'VPN' Connection
  - Uses IPV6 Technologies
- Seamless Access to Intranet \ LAN
  - Uses Automatic DNS to locate Internal Servers
  - Live before Login ! – Software deployment

# DirectAccess



# Windows 7 & Server 2008 R2

## Direct Access

- Requires:
  - Windows Server 2008 R2 System
  - Windows 2008 AD with AD Certificate Services
  - At least /29 Public SubNet (4 useable IP) for DAS
  - Great Deal of Patience & Care to Setup

# Windows 7 & Server 2008 R2

## Direct Access

- Requirements & Gotchas:
  - Need IPV6 Internally on LAN
  - Need IPV6 DNS Setup and Host Records for Internal Target Servers
  - Watch Out for SMB v2 Issues with W2003 Servers

# Windows 7 & Server 2008 R2

## Direct Access

- IPV6 Protocols:

- ISATAP - IPV6 over IPv4 Internally on LAN & WAN
- 6To4 – Gets IPV6 Host back to DAS over IPV4
- Teredo – Gets through NAT
  - 3G Connections or DAS in 'pseudo' DMZ

# Windows 7 & Server 2008 R2

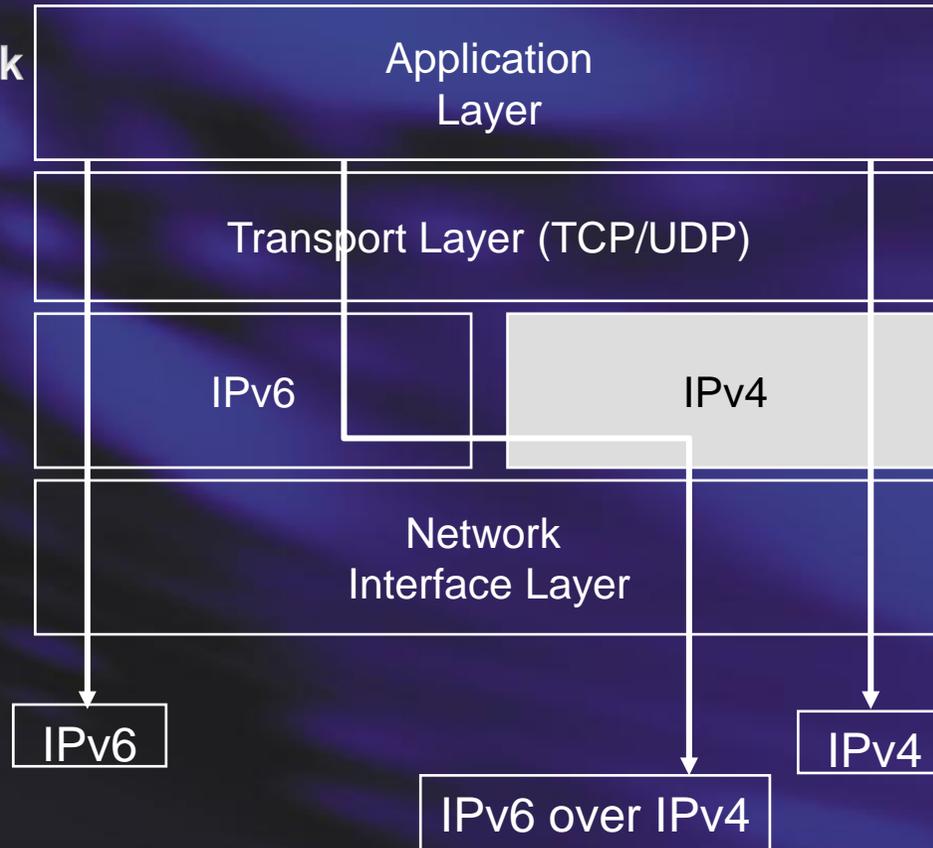
## Direct Access

- SMB V2:
  - W2008 has performance issues with accessing W2003 UNC Shares & can affect transfer thru DAS
  - Kill off SMB V2 Client on DAS
    - sc config lanmanworkstation depend= bowser/mrxsmb10/nsi
    - sc config mrxsmb20 start= disabled

# Windows 7 & Server 2008 R2

## Direct Access IPv6

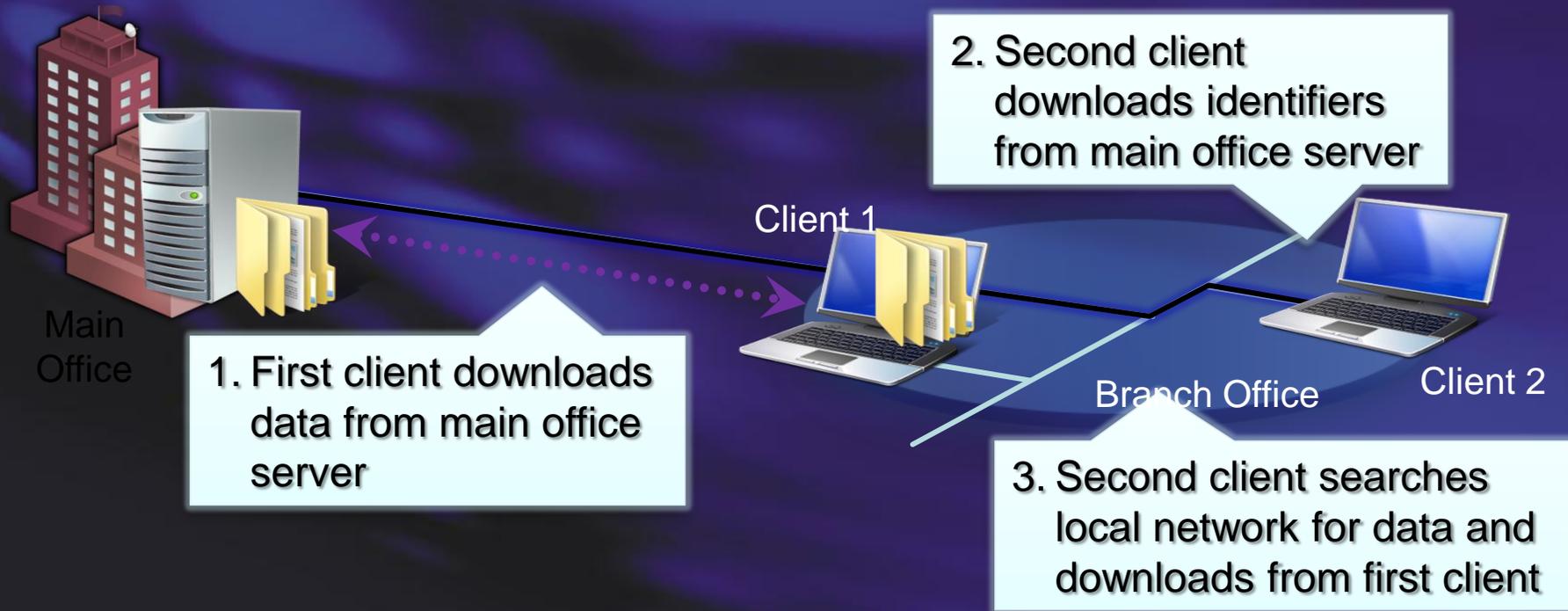
Just talk to the stack  
let OS do the rest



# Windows 7 & Server 2008 R2 Branch Cache

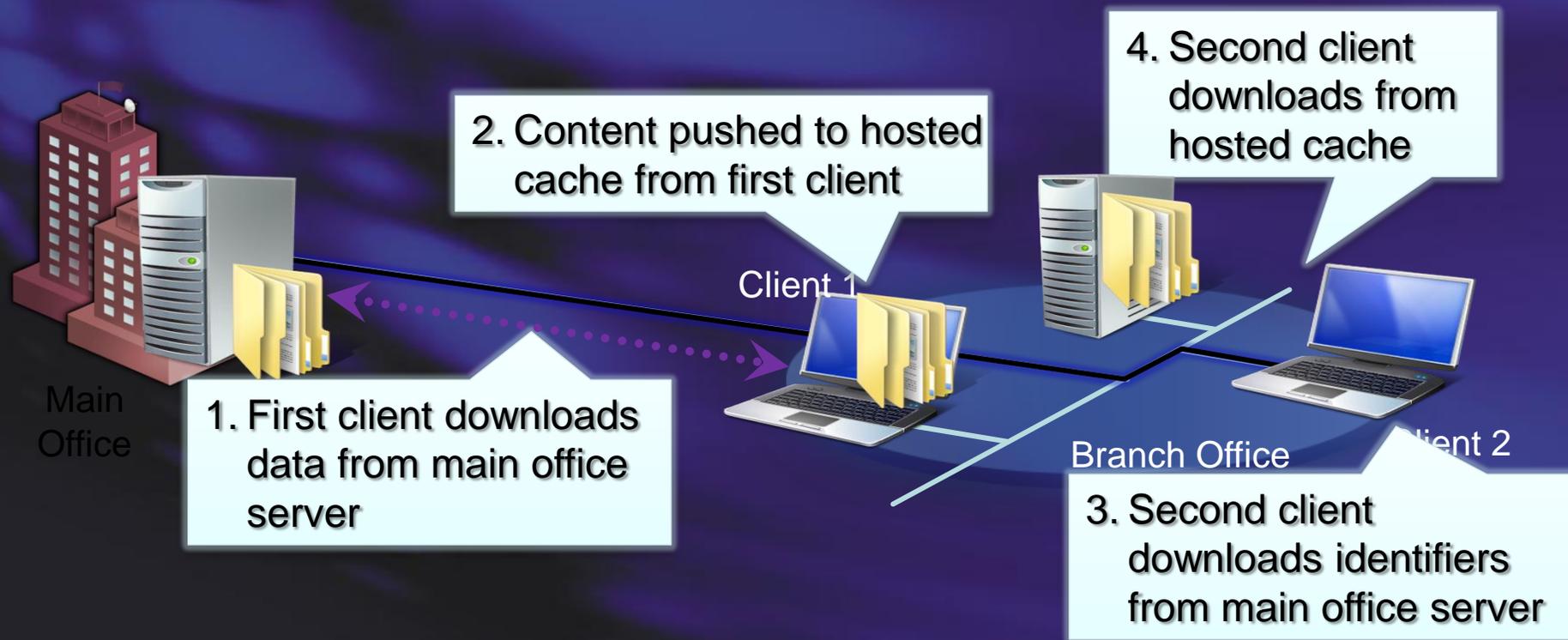
- Significantly Reduces WAN File traffic
  - Could you use File Based Storage (XHTML \ XML)
- Completely 'Invisible' to Users
  - SMB Technology – Uses 'Shares' & Mapped Drives
  - Works in a Workgroup Environment !

# Windows 7 & Server 2008 R2 Branch Cache



# Windows 7 & Server 2008 R2

## Branch Cache with Server



# Windows 7 & Server 2008 R2 Branch Cache

- Requires:
  - Windows Server 2008 R2 System
  - Mapped Drives
  - UNC Shares
  - HTTP\S SharePoint Intranet sites

# Windows 7 & Server 2008 R2 Remote Desktop Services

- No Longer Just 'Session' Based
  - Can Use 'Virtual PC' Technologies (more secure)
- Remote Deliver an Application
  - Appears as if a Local Application (inc local drives)
  - Simplifies Updates for Large Remote User Groups

# Windows 7 & Server 2008 R2

## Remote Desktop Services



### Windows Server 2008 Terminal Services

- ▶ TS RemoteApp
- ▶ TS Gateway
- ▶ TS Session Broker
- ▶ TS Web Access
- ▶ TS Easy Print
- ▶ Terminal Server



### Windows Server 2008 R2 Remote Desktop Services

- ▶ RD Gateway
- ▶ RD Connection Broker
- ▶ RemoteApp and Desktop Web Access / Connections
- ▶ RD Easy Print
- ▶ RD Session Host
- ▶ NEW: RD Virtualization Host

# Windows 7 & Server 2008 R2

## Remote Desktop Services



# Windows 7 & Server 2008 R2 Remote Desktop Services

- Requires:
  - Windows Server 2008 R2 System
  - IIS for RDGateway (access to internal PCs)
  - Applications should be designed for RDP Use
  - Optionally ADCS for Certificate IDs

# Windows 7 & Server 2008 R2 OS System Support

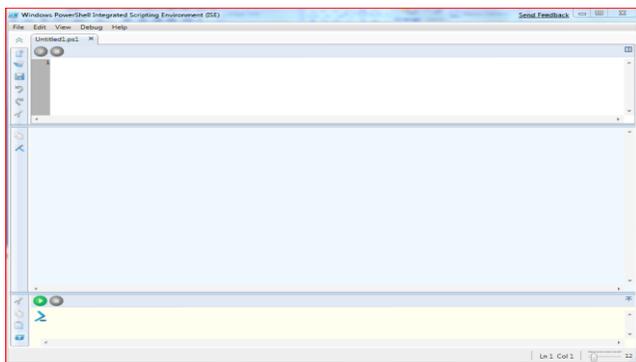
- PowerShell 2.0
  - Strategy is to use PowerShell CmdLets for **EVERYTHING**
  - GUI Apps simply wrap CmdLets
  - You should develop System Applets the same way

# Windows 7 & Server 2008 R2 OS System Support

- PowerShell 2.0
  - Now supports WinRM
  - Can Control Remote Systems
  - You should develop Remote Management Applets the same way

# Windows 7 & Server 2008 R2 OS System Support

## Improved Command-line shell & Scripting Language



- Improves productivity & control
- Accelerates automation of system admin
- Easy-to-use
- Works with existing scripts
- Community Model – Get Involved !

### New Features

- Graphical PowerShell
- Improved Security
- Portability
- New cmdlets

### Integration

- AD Administration Center
- IIS
- Power Management
- One-to-many remote management

# Windows 7 & Server 2008 R2 OS System Support

- Problem Steps Recorder (PSR)
  - Best Kept Secret in Win 7 😊
  - Great for Beta Testers
  - Even Better for Remote User Support

# Windows 7 & Server 2008 R2 Network Applications

- Storing User Settings on the Directory
  - Always Recommended since Win 2000 Server AD
  - Relatively Easy to Extend User Object in Schema
    - Register for root OID – free via MSDN
  - GPO Management Plug-Ins much easier (ADMX)

# Windows 7 & Server 2008 R2

## Internet Explorer 8

- Compatibility View
  - Assists websites to render (IntraWeb)
- In Private Browsing
  - Secures Browser Session
  - Note: Denies Saving of ANY DATA Locally

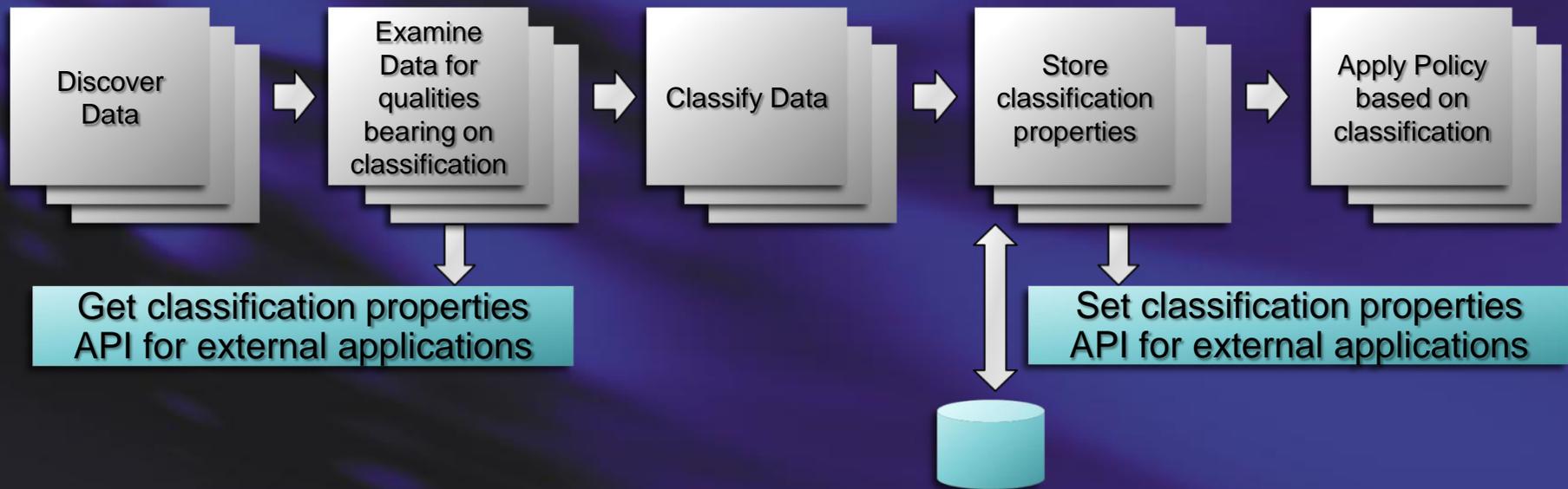
# Windows 7 & Server 2008 R2 Server Core

- GUI-less Server Install
  - Get to Grips with PowerShell 2.0 ☺
  - More secure – only install needed roles & features
- Ideal as WebServer
  - Now Supports ASP.NET

# Windows 7 & Server 2008 R2 File Classification Service

- Significantly Extends 'Search' Service
  - Adds Business Processing Rules
  - Allows Auto Securing & Archiving
- Extensible with Well Documented API
  - Microsoft want 3<sup>rd</sup> Parties to Develop Extensions

# Windows 7 & Server 2008 R2 File Classification Service



Windows Server 2008 R2  
File Classification Extensibility points

# Windows 7 & Server 2008 R2 Summary

- Windows 7 & Windows Server 2008 R2
  - Work Better Together
  - Work Better Than Vista (IMHO)
- Provides Loads of Features to Really Empower Developers

# Windows 7 & Server 2008 R2 Summary

- Start to Follow Microsoft Strategies
  - Look at Using PowerShell to enable interactions
  - IPV6 Enable Standalone Application Servers (DA)
- Secure Your Apps & Data with OS Features - Check the Hardware works 😊

# Windows 7 & Server 2008 R2

## Use the Features Microsoft Supply



### Plan

Microsoft®  
Assessment and Planning

Microsoft®  
Application Compatibility  
Toolkit

Office Migration Planning  
Manager

Windows Security Guides

Group Policy Guides



### Build

Windows®  
Automated Installation Kit

Windows®  
Deployment Services

Windows PE

Windows System Image  
Manager (Windows SIM)

WIM Image Format

Office Customisation Tool



### Deploy

Windows®  
Deployment Services

User State Migration  
Toolkit (USMT)

ConfigMgr 2007

Application Virtualisation  
(APP-V)

Microsoft Enterprise  
Desktop Virtualisation  
(MED-V)



### Operate

Image Servicing

Operations Manager

Desired Configuration  
Management

Distributed File System  
(DFS/R)

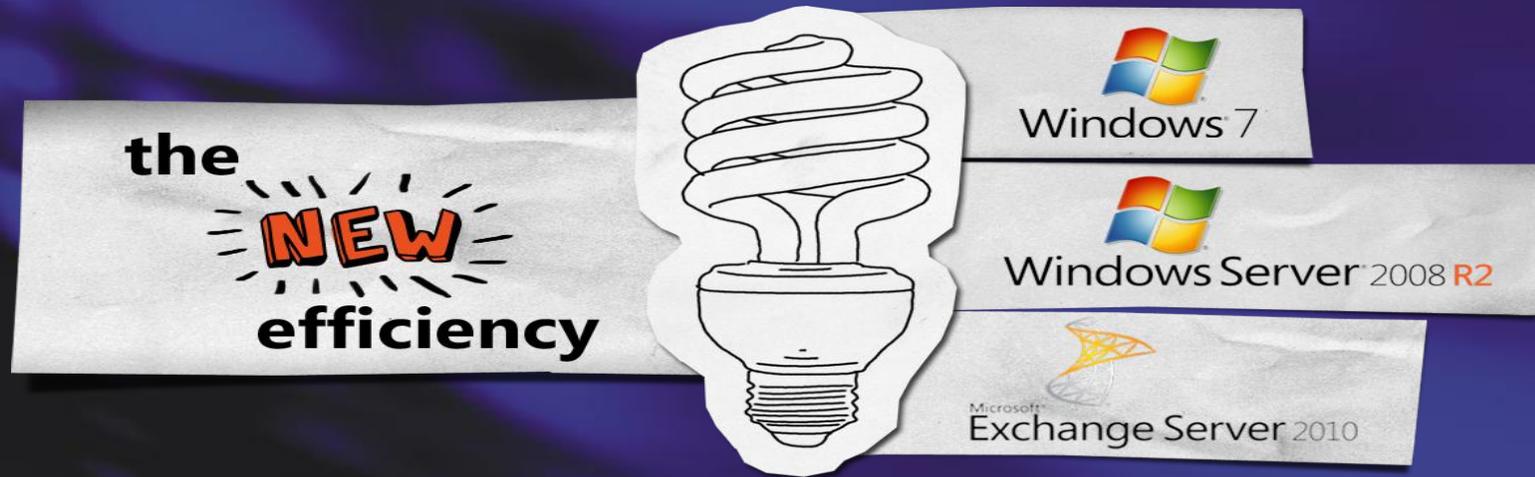


Microsoft®  
Deployment Toolkit



Microsoft®  
System Center

# Windows 7 & Server 2008 R2 Any Questions?



PS – Exchange 2010 is Coming Soon !