

# Preparing for Windows 7

Prepared for:

The American Association of State Highway and Transportation Officials

Julian Soh  
Microsoft Corporation

[Julian.Soh@microsoft.com](mailto:Julian.Soh@microsoft.com)



# Caveats

- This is a directional view into Windows investments for businesses not consumers
- Dates and capabilities are subject to change

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# Pre-7 Strategies

# OS and Support Roadmap

## 3 years of new products and services

2006	2007	2008-2010
<p>Microsoft <b>Software Assurance</b> for Volume Licensing</p>	<p> <b>Windows Vista</b> Enterprise</p>	<p>Microsoft <b>Enterprise Desktop Virtualization</b> *Announcement of new MDOP product acquisition</p>
<p> <b>Windows Fundamentals for Legacy PCs</b></p>	<p>Microsoft <b>Desktop Optimization Pack for Software Assurance</b></p> <ul style="list-style-type: none"><li> Microsoft <b>Application Virtualization</b> v4.2</li></ul>	<ul style="list-style-type: none"><li>v4.5</li></ul>
	<ul style="list-style-type: none"><li> Microsoft <b>Advanced Group Policy Management</b> v2.5</li></ul>	<ul style="list-style-type: none"><li>V3.0</li></ul>
	<ul style="list-style-type: none"><li> Microsoft <b>Diagnostics and Recovery Toolset</b> V5.0</li><li> Microsoft <b>Asset Inventory Service</b> V1.0</li><li> Microsoft <b>System Center Desktop Error Monitoring</b> V3.0</li></ul>	<ul style="list-style-type: none"><li>V6.0</li><li>V1.5</li><li>SP1</li></ul>
	<p> <b>Windows Vista</b> Enterprise Centralized Desktop</p>	<p><b>Windows Server 2008/R2</b></p> <p><b>Windows 7</b></p>

# Optimized Desktop Vision

Reducing dependencies = Ease of Migration

## Issues IT Faces

PC components bound together, difficult to replace hardware, software



## What's Changing

Breaking ties using technologies like virtualization to increase agility

# Simplify Future Upgrades

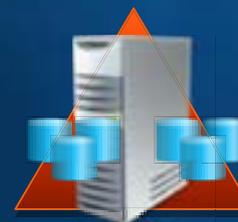
## With Windows Optimized Desktop and MDOP

### Today

Deploy PCs using application virtualization and folder redirection



Application  
Virtualization  
(a.k.a., SoftGrid)



Group Policy and AGPM  
Folder Redirection  
Offline Files

### New OS Upgrade

Settings, data, and applications automatically streamed to user



# Microsoft Desktop Optimization Pack

Enterprise management tools for Software Assurance customers



Microsoft  
Asset Inventory  
Service



Microsoft  
Advanced Group  
Policy Management



Microsoft  
Application  
Virtualization



Microsoft  
System Center Desktop  
Error Monitoring



Microsoft  
Diagnostics and  
Recovery Toolset



Microsoft  
Enterprise Desktop  
Virtualization

# Windows 7

# Windows 7 Development Progress



# Windows 7 Builds on Windows Vista

Deployment, Testing, and Pilots Today Will Continue to Pay Off



## Similar Compatibility:

- Most software that runs on Windows Vista will run on Windows 7. Exceptions will be low level code (AV, Firewall, Imaging, etc).
- Hardware that runs Windows Vista well will run Windows 7 well.



**Few Changes:** Focus on quality and reliability improvements



**Deep Changes:** New models for security, drivers, deployment, and networking



# Investments in Windows Vista will Continue to Pay Off in Windows 7

- Architectural changes in Windows Vista are paying off
- Windows 7 will build on these changes, not redo them
- Windows Vista deployment today will ease future migration to Windows 7 – compatibility is our goal

## Deep Changes in Windows Vista

- User Account Control
- Security Hardening
- Image Format
- Display driver model



## Benefits Today & In the Future

- Less malware on PC
- Fewer vulnerabilities
- Componentization & servicing
- Less execution in kernel-mode

# Business Challenges...



“My users are becoming more savvy and have more diverse needs. How do I keep people connected to what they need?”



“How can I enable the software and devices my users require and minimize their risk?”



“How can I reduce costs and take advantage of new technologies like virtualization?”



# Windows 7 for the Enterprise

## Key Enterprise Features



### Make Users Productive Anywhere

- At their desk
- In a branch
- On the road

### Enhance Security & Control

- Protect data & PCs
- Built on Windows Vista foundation

### Streamline PC Management

- Easy migration
- Keep PCs running
- Virtualization

# Enterprise features

- DirectAccess\*
- Enterprise Search\*
- AppLocker\*
- BranchCache\*
- BitLocker-to-go
- PowerShell 2.0
- Windows Troubleshooting Platform
- Management and Deployment Tools\*

\*May require Windows Server 2008/R2 and/or Active Directory upgrade

# DirectAccess

# Remote Access for Mobile Workers

Make Users Productive Anywhere

## Situation Today



- Difficult for users to access corporate resources from outside the office
- Challenging for IT to manage, update, patch mobile PCs while disconnected from company network

## Windows 7 Solution

DirectAccess™



- New network paradigm enables same experience inside & outside the office
- Seamless access to network resources increases productivity of mobile users
- Infrastructure investments also make it easy to service mobile PCs and distribute updates and policies

# DirectAccess

- Requires:
  - Windows Server 2008/R2
    - Enterprise Edition
      - Running DirectAccess Server *feature* (not role)
    - Two Network Cards
    - IPv6
  - Windows 7 (not in Build 7000)
    - IPv6
  - PKI (Public Key Infrastructure)
  - Active Directory

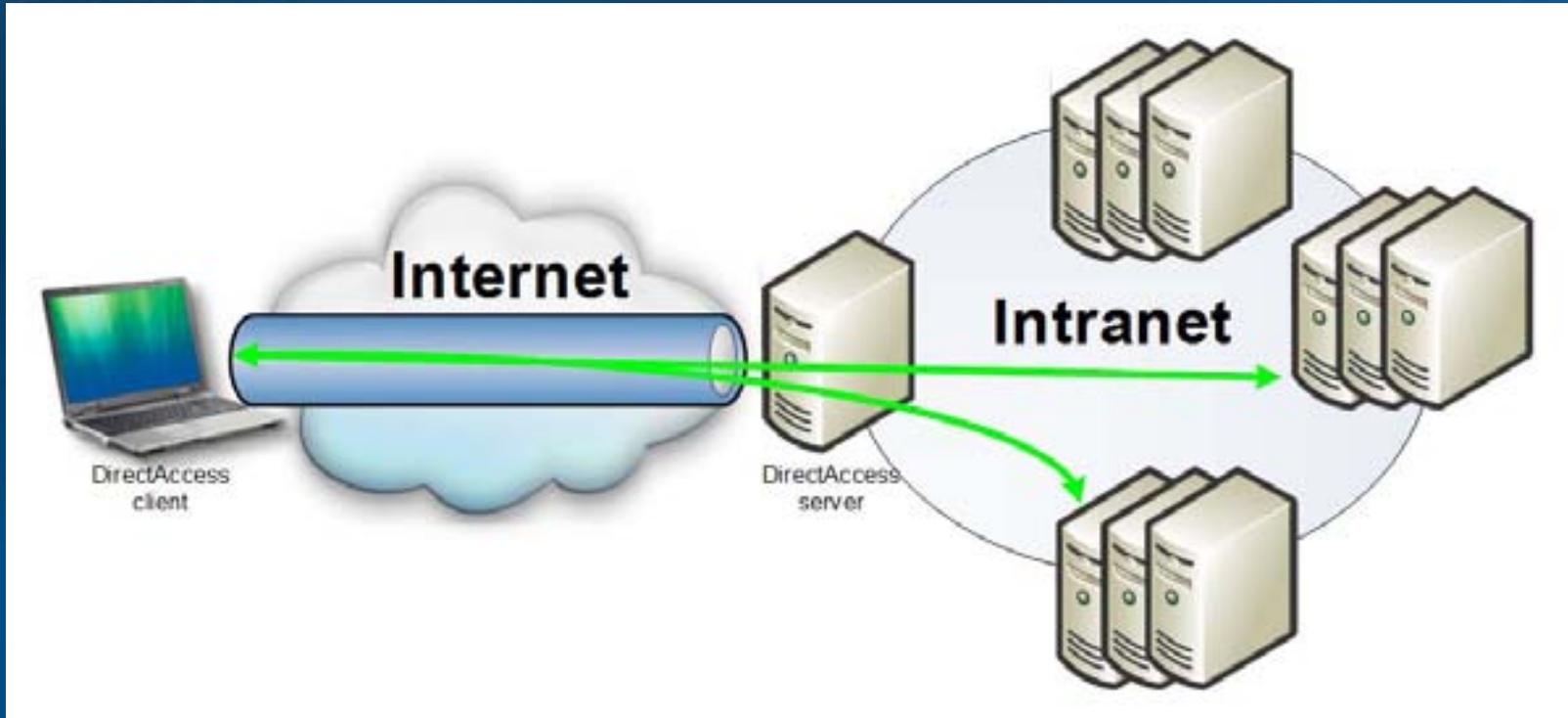
# DirectAccess features

- User does not have to establish the connection
- User does not have to reconnect if the Internet connection breaks
- Group Policy in force
- Users can log into Active Directory
- Works with NAP and NAT
- Communication encrypted by IPSec

# DirectAccess – Two Connection Methods

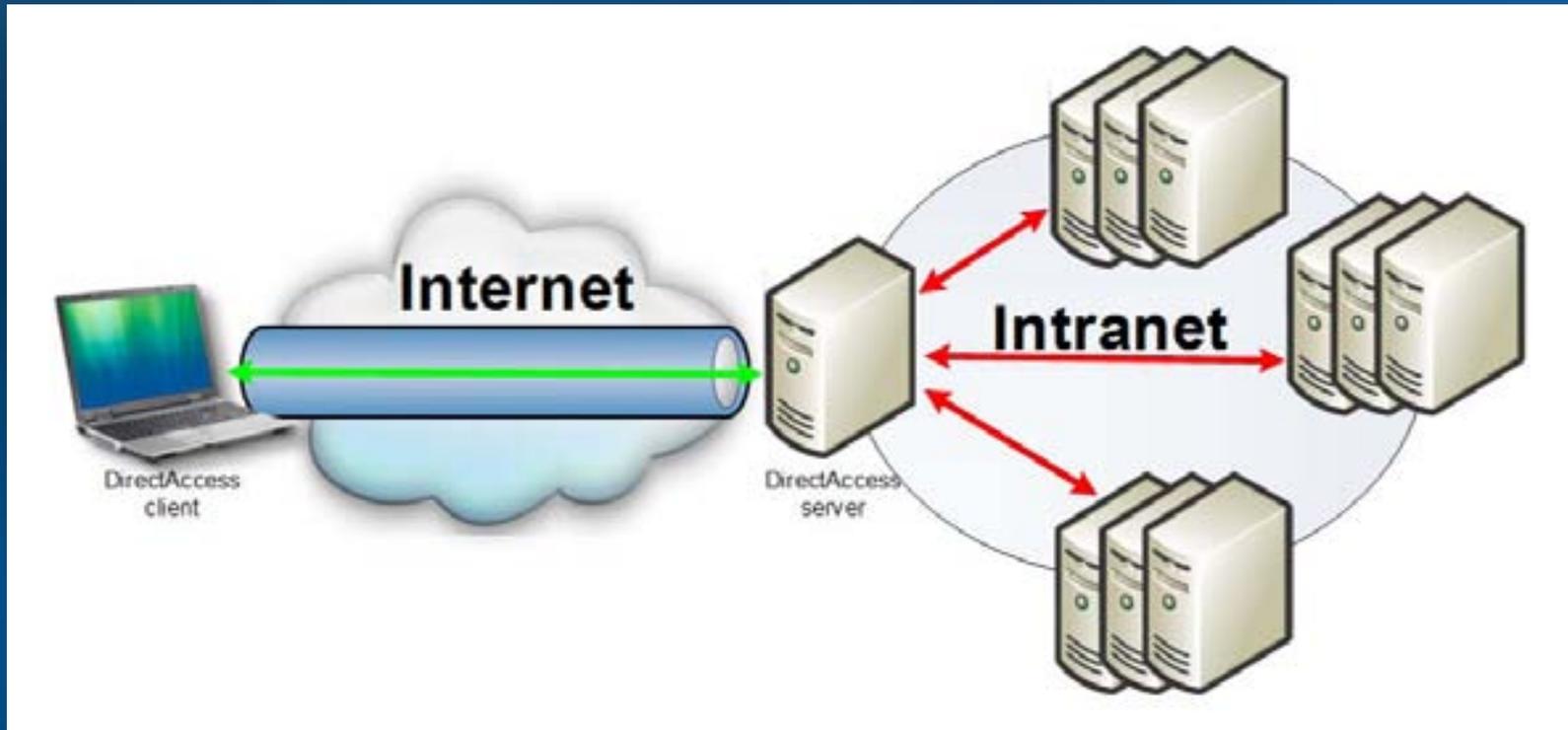
- Selected Server Access
- Full Enterprise Network Access/Proxy-type access

# DirectAccess – Selected Server Access



IPSec connection through DirectAccess server to each application server; application servers have to run Windows Server 2008 or R2 and must support IPv6 and IPSec

# DirectAccess – Full Enterprise Network Access / Proxy-type Access



IPsec connection to an IPsec gateway (can be DirectAccess server);  
IPSec gateway forwards traffic to IPv4 application servers

# Additional DirectAccess notes

- By default, internet traffic will NOT be routed through DirectAccess server or any other enterprise application servers
- Windows Firewall can further block/route traffic to fine-tune access
- Tunnel protocols are supported: Teredo, 6to4, Intra-Site Automatic Tunnel Addressing Protocol (ISATAP), IP-HTTPS

# Enterprise Search

# Enterprise Search

Make Users Productive Anywhere

## Situation Today



Windows Vista™



Microsoft Office SharePoint Server  
Microsoft Search Server 2008

- Current desktop and Enterprise search solutions are good, but not integrated
- Users need to take different steps to find data on PC and data on servers
- Data sources are hard to discover

## Windows 7 Solution

### Search Federation



- Consistent user experience for finding data from multiple locations, including SharePoint
- IT can pre-populate links on Start menu and Explorer to preferred sites with “Enterprise Search Scopes”



# Enterprise Search

## Features and Requirements

- Features

- Extends Vista's desktop search to the corporate repositories (SharePoint) using Search Scope

- Requirements

- New Active Directory GPO

# BranchCache

# Branch Office Network Performance

Make Users Productive Anywhere

## Situation Today



- Application and data access over WAN is slow in branch offices
- Slow connections hurt user productivity
- Improving network performance is expensive and difficult to implement

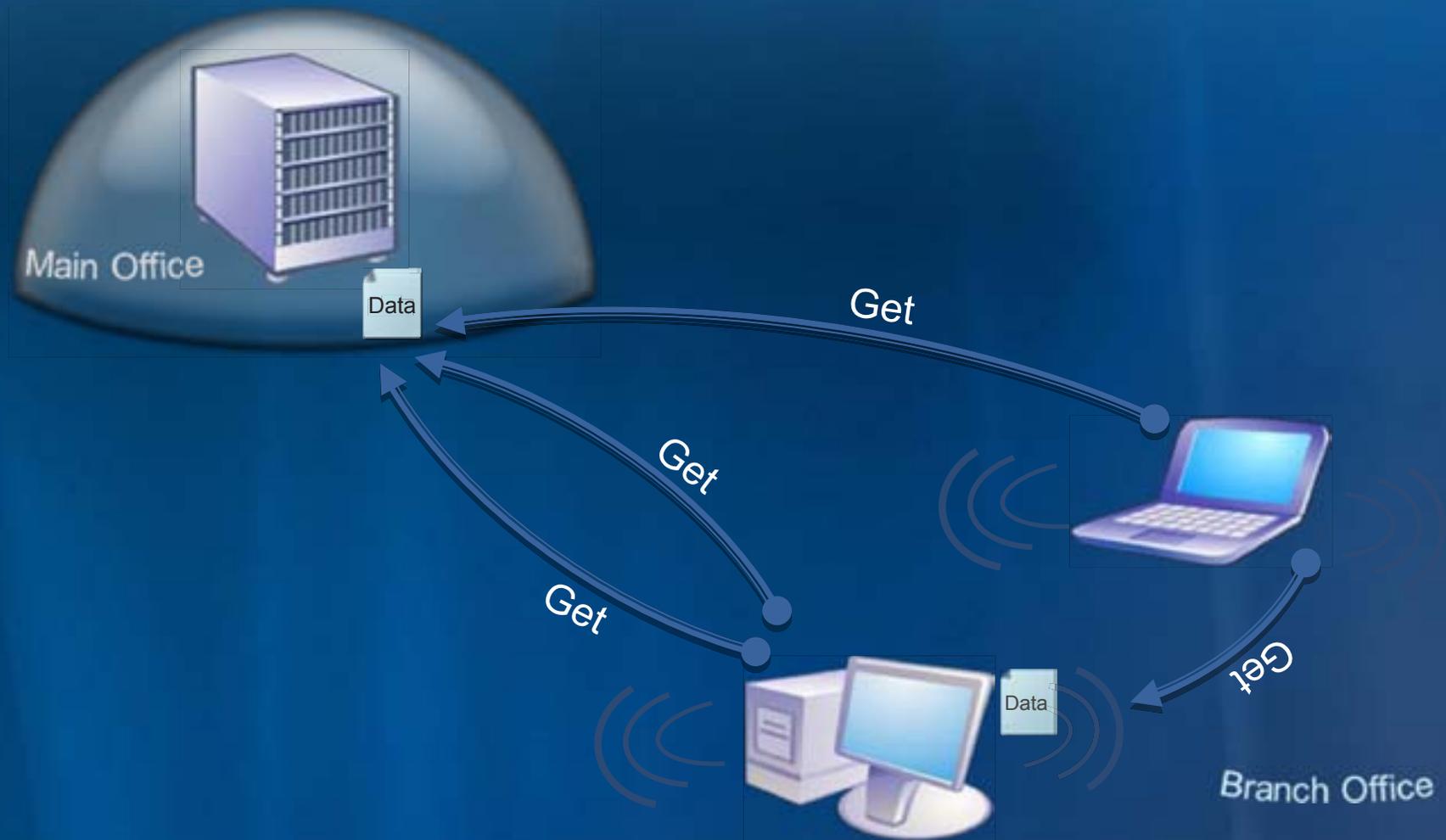
## Windows 7 Solution

### BranchCache™

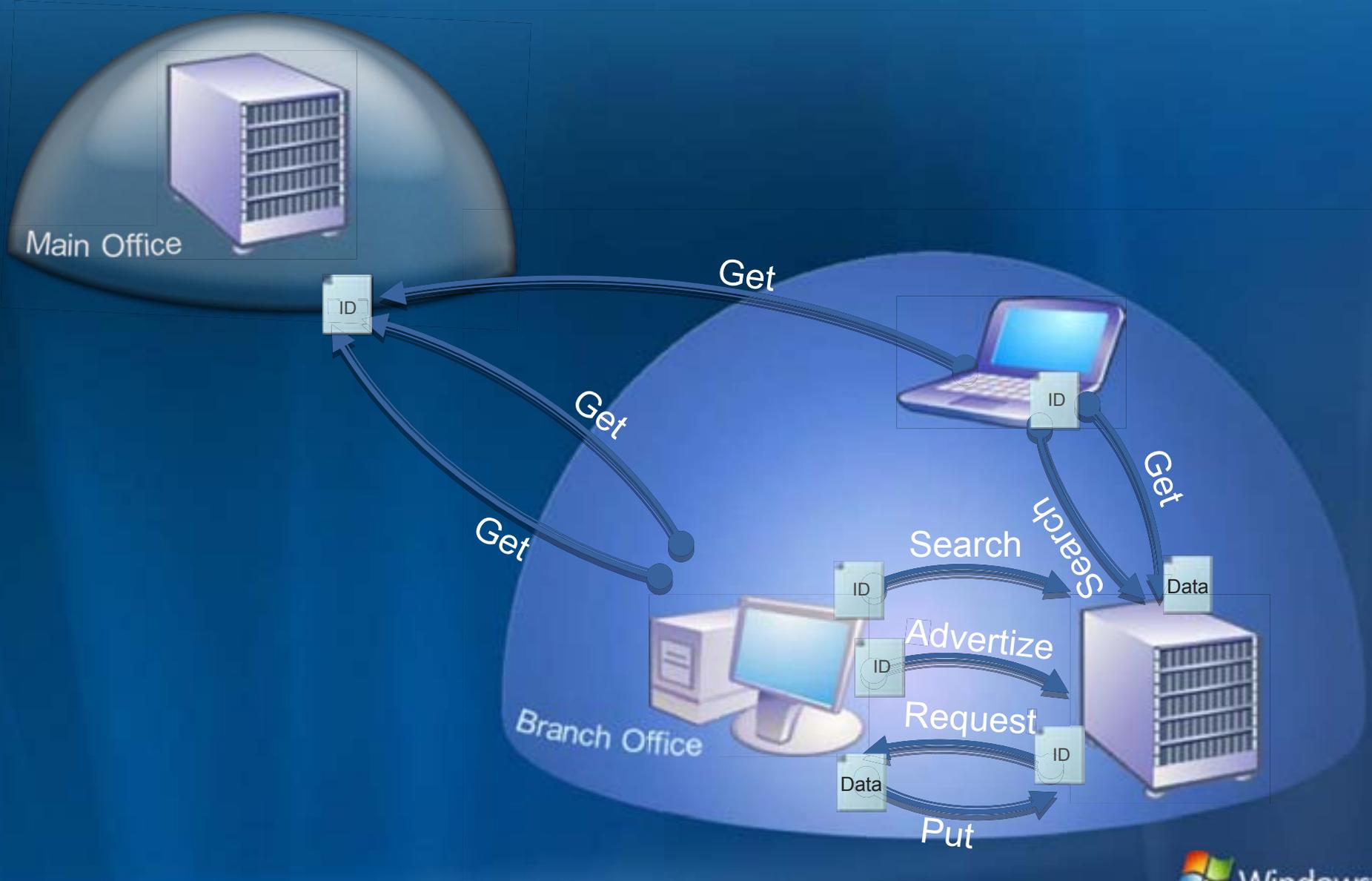


- Caches content downloaded from file and Web servers
- Users in the branch can quickly open files stored in the cache
- Frees up network bandwidth for other uses

# BranchCache Distributed Cache



# BranchCache Hosted Cache



# BranchCache



## Distributed Cache

Data cached in cache pool

- Recommended for branches without a branch server
- Easy to deploy: Enabled on clients through Group Policy
- Cache availability decreases with laptops that go offline

## Hosted Cache

Data cached at the host server

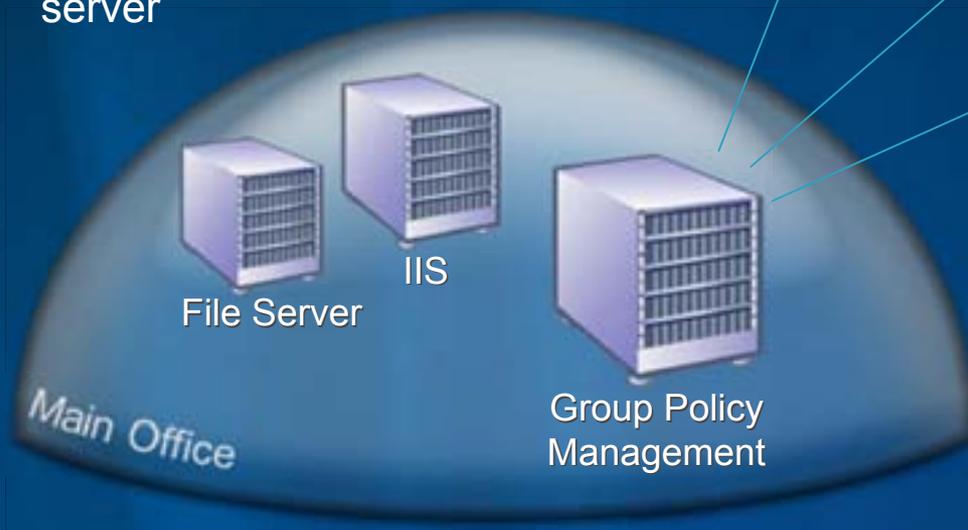
- Cache stored centrally: existing Windows Server 2008 R2 in the branch
- Cache availability is high
- Enables branch-wide caching
- Increased reliability

# Deploying BranchCache

Use Group Policy to enable Windows BranchCache on Windows 7 clients



Install the optional "Windows BranchCache" component on a Windows 2008 R2 web or file server



Optionally, install a hosted cache in your branch. Configure clients to use it with Group Policy

# Security

# Enhance Security & Control



## Protect Data on PCs & Devices

- BitLocker To Go™ protects data on removable drives
- BitLocker™ simplifies encryptions and key management for all drives



## Protect Users & Infrastructure

- AppLocker™ controls what applications run
- Internet Explorer 8 helps keep users safe online



## Build on Windows Vista Security Foundation

- User Account Control prompts less
- Security Development Lifecycle for defense in depth

# UAC Changes

# User Access Control (UAC) – Changes

- Users only receive prompts if application(s) attempts to make changes not initiated by current user/OS
- Windows 7 provides four levels of UAC
- Security Center in Control Panel replaced by Action Center

# BitLocker

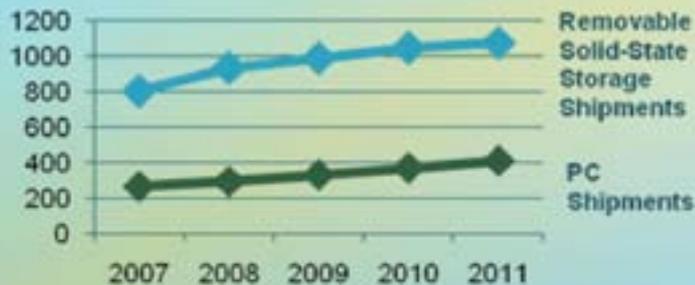
# Data Protection

Enhance Security & Control

## Situation Today



### Worldwide Shipments (000s)



- Gartner "Forecast: USB Flash Drives, Worldwide, 2001-2011" 24 September 2007, Joseph Unsworth
- Gartner "Dataquest Insight: PC Forecast Analysis, Worldwide, 1H08" 18 April 2008, Mikako Kitagawa, George Shiffler III

## Windows 7 Solution

### BitLocker To Go™



- Protect data on internal and removable drives
- Mandate the use of encryption with Group Policies
- Store recovery information in Active Directory for manageability
- Simplify BitLocker setup and configuration of primary hard drive

# BitLocker-to-go – Demo & Facts

- Uses Passphrase and/or Smartcard
- Can be enforced via GPO
- Encryption enabled on Windows 7 but accessible on Windows Vista/XP
- BitLocker keys can be centrally managed in Active Directory

# AppLocker

# Application Control

Enhance Security and Control

## Situation Today



- Users can install and run unapproved applications
- Even standard users can install some types of software
- Unauthorized applications may:
  - Introduce malware
  - Increase helpdesk calls
  - Reduce user productivity
  - Undermine compliance efforts

## Windows 7 Solution

AppLocker™



- Eliminate unwanted/unknown applications in your network
- Enforce application standardization within your organization
- Easily create and manage flexible rules using Group Policy

# AppLocker

- Managed through Group Policy



# AppLocker

- Supports 3 types of rules:
  - Path rule
    - Only restricts execution of applications from certain directories
  - File hash rule
    - Check generated file hashes of approved applications. Need to up updated whenever binary is changed
  - Publisher rule
    - Newer applications usually have the publisher's digital signatures

It's the little things that seem to  
count....

# Most important feature

Turning off Balloon Notifications – From Vista onwards

The screenshot shows the Local Group Policy Editor window. The left-hand navigation pane is expanded to 'Start Menu and Taskbar'. The main pane displays the policy 'Turn off all balloon notifications'. Below the policy name, it shows 'Display Properties', 'Requirements: At least Windows Vista', and a 'Description' stating that enabling the setting prevents notification balloons from being shown to users, while disabling or not configuring it allows them to be displayed. A table of settings is shown on the right, with the 'Turn off all balloon notifications' entry highlighted in blue and circled in red. The 'State' for this entry is 'Enabled'.

Setting	State
Remove Music icon from Start Menu	Not configured
Remove Network Connections from Start Menu	Not configured
Remove Network icon from Start Menu	Not configured
Remove Pictures icon from Start Menu	Not configured
Remove pinned programs list from the Start Menu	Not configured
Remove programs on Settings menu	Not configured
Remove Recent Items menu from Start Menu	Not configured
Remove Run menu from Start Menu	Not configured
Remove Search Computer link	Not configured
Remove Search link from Start Menu	Not configured
Remove the "Undock PC" button from the Start Menu	Not configured
Remove the battery meter	Not configured
Remove the networking icon	Not configured
Remove the volume control icon	Not configured
Remove user folder link from Start Menu	Not configured
Remove user name from Start Menu	Not configured
Remove user's folders from the Start Menu	Not configured
Show QuickLaunch on Taskbar	Not configured
<b>Turn off all balloon notifications</b>	<b>Enabled</b>
Turn off notification area cleanup	Not configured
Turn off personalized menus	Not configured
Turn off taskbar thumbnails	Not configured
Turn off user tracking	Not configured

# Planning & Deployment Tools for Windows 7

# Migration Scenarios

- Windows XP to Windows 7
  - No in-place upgrade option
- Windows Vista to Windows 7
  - In-place upgrade available

# Planning Tools

- Microsoft Assessment and Planning
  - Quickly assess current hardware for Windows 7 compatibility
- Application Compatibility Toolkit
  - Inventory and assess applications running in Windows XP environments
  - Create compatibility fixes for incompatible applications

# Microsoft Assessment and Planning

- Updated February 3, 2009
- Download from the repository

`\Documents\Windows 7 \Planning`

# Application Compatibility Toolkit (ACT)

- Scheduled to release together with Windows 7 RC1
- April / May 2009
- Consider using ACT 5.0 for Vista in the meantime
- Will be posted to the repository when available

# Deployment Tools/Features

- Microsoft Deployment Toolkit
  - Combines installation & migration steps into a single automated process
- Microsoft Windows Automated Installation Kit (AIK or WAIK)
- Dynamic Driver Provisioning
- User State Migration Tool
- Hard-Link Migration

# Deployment Image servicing and Management (DISM)

- Consolidates multiple tools into a single mechanism for servicing images
- Enumerates features, packages, software updates and drivers
- Mount and un-mount images
- Enable/disable features offline
- Add/Remove Drivers and Packages
- VHD image support

# Automated Installation Kit (AIK / WAIK)

- In Beta release
- Used by Enterprise IT to customize Windows images
- Perform unattended installations
- Create images for automatic deployment

ISO image of the AIK located at the repository:

`\\Documents\Windows 7\Deployment\KB3IAK_EN.ISO`

# User State Migration Tool (USMT)

- Enables clean installation with minimal hassle to migrate user profile
- Files, preferences, and bookmark, etc will be migrated
- Windows.old created and can be deleted only via disk cleanup

# Hard-link Migration (built-in)

- Enables local file migration without copying or moving files
  - For XP -> 7 (aka Lite Touch Deployment)
    - USMT 4.0 is part of the Microsoft Deployment Tool 2010\*
- Processes migration job in a third of the time or less (e.g. 19GB user data takes 4+ minutes of total upgrade time)

\*Beta available since January 2009 from the Microsoft website

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# Windows Server 2008/R2