



Lunch Break

S E R I E S

Windows 7— Configuration Management in the Cloud or On-Premises

In the cloud or down here on the ground, make sure you have the strategy and tools in place for configuring and deploying Windows 7 smoothly.

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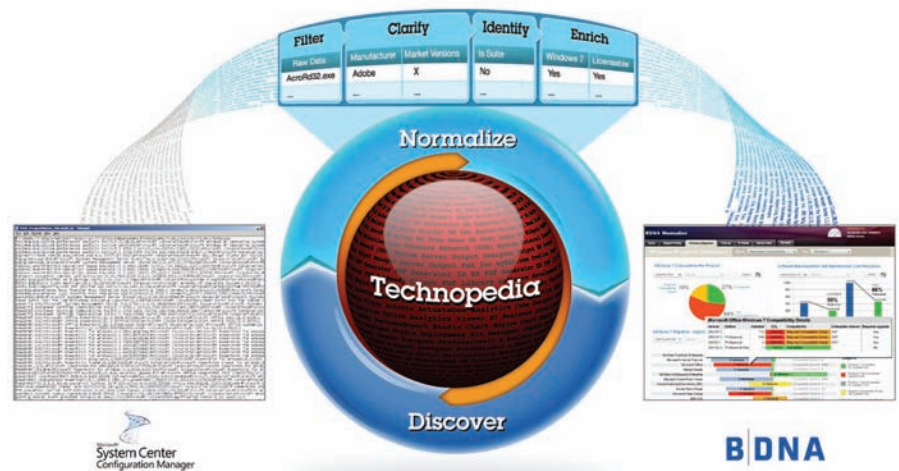
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Automating Windows 7 Deployments

Take the time to get the most out of Microsoft's free Windows 7 automation deployment tools—you won't regret it.

Perhaps I'm biased because I teach Windows 7 deployment classes to companies big and small. When one assumes the mantle of IT trainer, one necessarily gets excited about the technologies he teaches. It's part of the package; it's also the mark of a good instructor.

The topics and technologies that surround automated Windows 7 deployment are rich and comprehensive. While not without their idiosyncrasies, they're also vastly improved over the duct tape and baling twine kludges most of us tossed to the curb years ago during our last OS upgrade.

They're also free. You can download the Microsoft suite of tools, replete with its trademark acronym alphabet soup, right off the Web site. The tools may be many in number, but by properly integrating them, you can inexpensively create a solution that automates just about every part of the Windows installation experience.

Hit F12, Walk Away

The powerful possibilities such automation presents ... well ... sadden me as I hear IT shops proclaim they'll "just have the vendor pre-image the OS." The rest of that conversation usually goes a bit like this:

Greg: "But have you heard about the ridiculous automations you can now do with the Microsoft Deployment Toolkit? With a little work, you could almost create a situation where you'd never need to troubleshoot

again! Just offload the user data, reinstall the OS and applications, and then restore the user data. It can all be automated and won't cost you anything but the time to set it up!"

IT Shop: "A quaint idea, but we've decided to just have our hardware vendor pre-image the desktops they ship with Windows 7. We just ship them a DVD, and machines arrive already imaged. That's such a time-saver when we just don't have the staff ..."

It's here where I realize yet another IT shop has chosen the path of short-term gain. You can guess how the rest of the discussion goes.

Vendor pre-imaging is indeed a valuable service. By leaning on the vendor's ability to preload an OS image, the IT shop saves incredible time and effort during deployment. Using preloaded images, a Windows 7 upgrade project requires little more than muscle, shoe leather and a bit of cabling.

Yet that short-term gain also belies an insidious long-term loss, one I see repeated across IT shops of all sizes. These IT pros get so stuck in the break/fix mentality and fail to see how such automation might alleviate later troubleshooting. Desktop got a problem? Just re-image it. Everything's automated.



I pondered the impacts of this kind of automation in an August 2010 *TechNet Magazine* column titled "The Troubleshooting Singularity". In that article, I suggested:



“We’re perfecting a true ‘layering’ of the entire computing experience. We can isolate OSes, applications, policies and user state information from each other and seamlessly shift them between devices. Stratifying the computing experience into isolated layers means we can manage each layer individually.

“We can also quickly and reliably reconstruct a layer when troubles occur — loading a new set of applications, a copy of the user’s state information, even a completely new OS—rather than wasting time troubleshooting ...

“We’re essentially approaching a state where it no longer makes economic sense to troubleshoot desktop problems. If there’s an issue with the OS, remotely send a new one. If someone loses a computer in the airport, transfer that machine’s exact state just before the loss to a new laptop. When

applications crash, simply delete the old one and stream down another copy.”

Technologies that accomplish exactly this exist today. In many cases, such as with the Microsoft Windows deployment tools, they’re also freely downloadable. They indeed require an up-front effort to construct and develop, but their payoff is patently enormous. With that effort invested, you might eradicate many costly troubleshooting efforts with little more than, “Hit F12, walk away.” Your automations do the rest.

Take advantage of your vendor’s offer for OS pre-imaging, but also do yourself a long-term favor. Make the investment in truly automating Windows 7 deployment. Someday, you’ll thank me. **R**

Greg is an independent author, speaker, and IT consultant, as well as a Founding Partner with Concentrated Technology. With nearly 15 years in information technology, Greg has developed extensive experience in systems administration, engineering, and architecture specializing in Microsoft OS, remote application, and virtualization technologies. Greg is a Contributing Editor and columnist for TechNet Magazine, a former columnist for Redmond Magazine and Virtualization Review Magazine, and has authored or contributed to ten books and countless white papers and webcasts. His writing is regularly seen in publications like TechTarget online, e-books from Realtime Publishers, and the UK-based IT EXPERT Magazine. He has also produced numerous video training series for CBT Nuggets.

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A Modern Guide to Windows 7 Desktop Deployment: Enterprise Automation Tools

There are a handful of specialized tools that make large-scale Windows 7 deployment much easier than with previous versions. Here's how to use them.

It was a different world at the turn of the century.

Businesses were just getting the hang of deploying Windows 2000. To customize and deploy Windows 2000, our forebears relied on a few key resources.

The tools of the day were sysprep, inf and unattend.txt (two plain text files that let you customize some aspects of the OS), and Sysprep (a tool that erased unique identifiers from the source machine, preparing it for image capture). If you wanted to get really creative, you could work in some custom VBScript that would automatically run when the machine booted for the first time after being deployed.

Now, in 2011, desktop deployment technologies have evolved substantially. With Windows Vista and Windows 7, the process has never been easier. There's a rich set of tools and readily available guidance to help you through the process. In this article I'll discuss some of the new tools and techniques to help you simplify, streamline and accelerate the desktop deployment process.

Microsoft Assessment and Planning Toolkit

Any well-thought-out IT project begins with a thorough assessment of the current environment and a solid plan for how to execute the project. The Microsoft Assessment and Planning (MAP) Toolkit helps you do just that. The MAP Toolkit includes several tools that fulfil three core

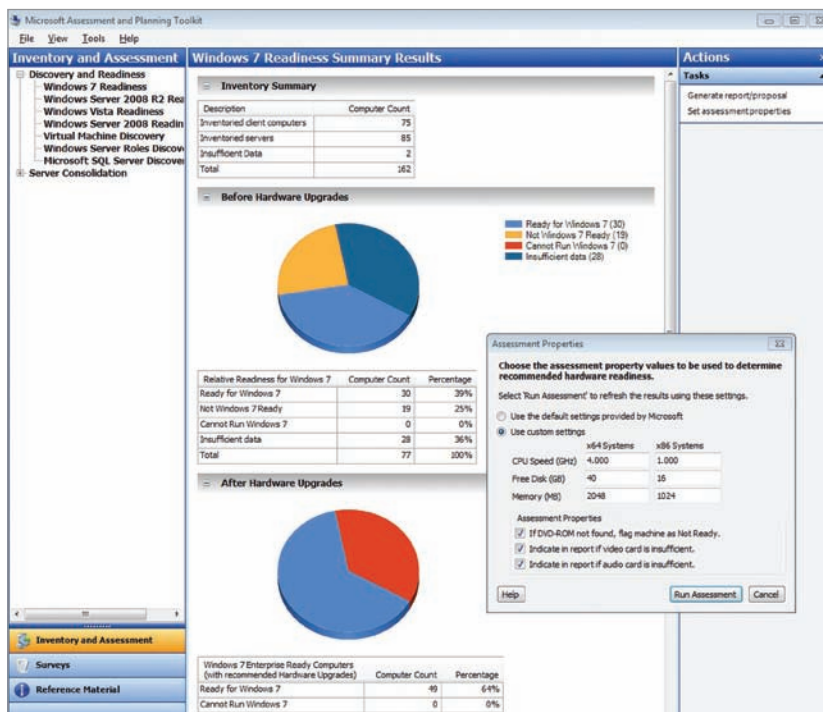


Figure 1. The Microsoft Assessment and Planning Toolkit gives you a thorough assessment and inventory of your current environment.

functions: inventory, compatibility analysis and readiness reporting.

The MAP inventory tool takes a secure, agentless inventory of computing resources across your network. By leveraging technologies already within your network—including Windows Management Instrumentation (WMI), the Remote Registry Service, Active Directory Domain Services and the Computer Browser service—MAP doesn't require any installation.

Once your inventory is complete, MAP gives you a comprehensive analysis of your organization's assets,

including detailed information on the composition of the environment, as well as identifying issues that may pose a challenge to a smooth migration to Windows 7. MAP also has rich reporting features that give you more detailed insights into the current state of your IT infrastructure (see Figure 1).

MAP also includes tools to conduct a similar inventory and analysis for software within your environment. This helps you understand the existing state of deployed software within your organization. It also helps identify any issues that may pose a roadblock to



successful deployment. Before starting on your next deployment project, download the latest version of the MAP Toolkit.

Microsoft Deployment Toolkit

Once you've used MAP to get a comprehensive view of your infrastructure and mitigate any outstanding issues, it's time to start engineering your new deployment. Microsoft Deployment Toolkit (MDT) 2010 provides a complete framework and toolset for customizing, automating and deploying new Windows 7 desktops. It also supports deploying Windows Server 2008 R2, Windows Server 2008 and Windows Server 2003.

With a centralized control panel called the Deployment Workbench, MDT completely streamlines the process of deploying a new OS. MDT supports three primary deployment scenarios:

- ▶ Lite-Touch Installation (LTI)
- ▶ Zero-Touch Installation (ZTI)
- ▶ User-Driven Installation (UDI)

Each scenario provides different levels of automation and user interaction based on your organization's needs and capabilities. You'll find expert guidance on choosing the best scenario in, "Using the Microsoft Deployment Toolkit," included in the MDT download.

There are a number of approaches to creating images. You can opt to create a "thick image"—a complete capture of the entire desktop environment, including OS, drivers, apps and so on.

Conversely, "thin images" represent a minimalist approach, including only what is absolutely necessary to create the desktop computing environment. You add applications and settings later in the process.

A "hybrid image" is just as it sounds: a "compromise" image that includes basic applications and customizations that apply to every user. You can apply further customization later. Once again, the "Using the Microsoft

Deployment Toolkit" document will help steer you in the best direction.

Once you've selected a deployment approach and image style, MDT will walk you through the process of creating a deployment share (where your images will be stored, and from where they will be deployed) and creating customized Windows images. From there, you have a number of choices for actually deploying the image, based on your scenario. These may include automated deployment via System Center Configuration Manager or a more manual version using customized boot media.

Windows Automated Installation Kit

While MDT 2010 provides a comprehensive approach, and is the recommended solution for building and deploying Windows images, you may prefer a more hands-on experience. Windows Automated Installation Kit (WAIK) gives you all the tools that MDT uses.

Application Compatibility and Virtualization

One of the more common issues IT professionals encounter during a desktop deployment is application compatibility. Legacy applications, including those developed internally, may still be business-critical and must be accounted for and identified. Application Compatibility Toolkit (ACT) can help you with that task.

ACT helps you rationalize existing applications by identifying potential duplicates, conflicting versions and so on. By helping you standardize applications throughout the organization, you're able to reduce the number of applications you need to test prior to deployment.

After completing the rationalization process, ACT can help you test each application for Windows 7 compatibility. This may be as simple as presenting details provided by the application

manufacturer indicating whether or not the application is compatible. In some cases, you may also be faced with in-house applications that require more detailed testing, or known incompatible apps that require mitigation in order to work properly with Windows 7.

Some applications have compatibility fixes—also known as shims—to work properly with Windows 7. You can make a large number of previously incompatible apps work quickly and easily using shims. For example, shims can make an application believe it's running as an administrator when it's not, or that it's running on Windows XP when it's running on Windows 7.

For those incompatible applications you can't mitigate with shims using ACT, you may need to employ virtualization technology like Virtual PC to run the application in Windows XP Mode, or Microsoft Enterprise Desktop Virtualization (MED-V). These emulate a previous version of Windows. MED-V, which is part of the Microsoft Desktop Optimization Pack, lets you run applications within a virtual machine running an older OS, and do so in a way that's completely seamless and transparent to the user. Applications appear and operate as if they were installed on the desktop. Users can even pin them to the task bar.

The process of desktop deployment has changed dramatically over the past decade. The tools and techniques available today give you greater control than ever before, while also streamlining management, simplifying process and accelerating deployment. **R**

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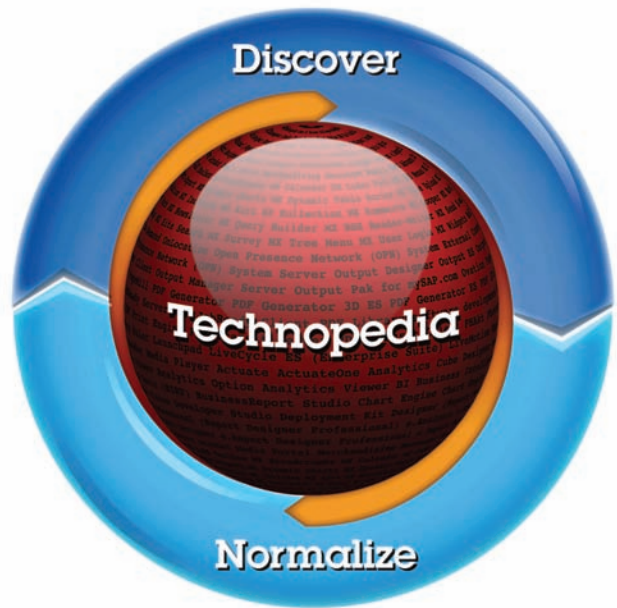
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Systems Center Configuration Manager 2012: Up and Running from the Ground to the Cloud

Microsoft's newest has plenty of features aimed at improving user access and easing system configuration and deployment.

Microsoft System Center Configuration Manager 2012 is in many ways the flagship of the System Center family, and it's a cornerstone in Microsoft's vision for systems management. Initially released in 1994 as Systems Management Server, it has undergone major changes, from version 2.0 to Systems Management Server 2003 and then to the incumbent SCCM 2007 R3. It's time now for another big shift, this time in response to the changing landscape of systems management in the enterprise.

The most sweeping changes in SCCM 2012 are focused on putting users first; Microsoft accomplishes this through User Centric Management (UCM). There's also a new console, a new role-based security model and simplified infrastructure and administration processes.

[Note: This article is based on the beta version, which was available to the writer at the time of evaluation and publication; features may have changed slightly, but for all intents and purposes, the topics discussed here are still timely and useful.—Editors]

The Basics of SCCM

For those new to systems management or SCCM, it works like this: Devices (clients, servers and smartphones) are discovered, usually through Active Directory, and client software is installed on each asset. These components are then inventoried for both hardware and installed software, and this data is stored in a central database; that data is then used to target application deployments to collections of client computers or users. Windows Server Update Services (WSUS) is also integrated into SCCM to provide updates to clients and servers; new machines can automatically have a fresh OS deployed to them, or existing machines can be upgraded to a newer version of the OS. Settings manage-

ment is used to monitor settings on all devices to ensure they adhere to corporate policy, and SCCM can integrate with Network Access Policy in Windows Server 2008 to ensure that the health of client devices is tested before full network access is granted.

User-Centric Management

The world of corporate IT is changing. Younger employees are "digital natives" who have grown up with technology and who expect to be able to access applications and data wherever, whenever and on whatever device they choose to work. The proliferation of devices that access programs and information is also continuing. Hand in hand with this is the consumerization of technology, where employees expect to bring their private smartphones or laptops to work and use these on the corporate network.

SCCM 2012 changes its focus from systems management to putting the user in the central role and involves end users to give them wider control over what software is installed on their devices and when it gets installed. They can, for instance, define their own work-hour pattern so that software installations

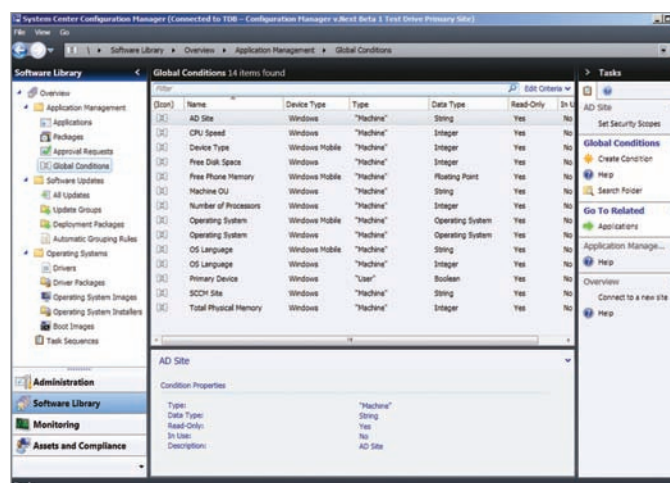


Figure 1. Gone are the days of complex scripting just to control how an application gets deployed.



take place outside these times. SCCM 2012 accomplishes this by linking users to particular devices. A device that's used most often by a person is called a primary device; a user can have more than one of these. Conversely, a primary user is the main user of a device, and each device can have more than one primary user.

Defining these relationships is done through user-device affinity; this

association can either be done by the user (through an imported file) or by an administrator (manually). The most interesting method is where usage statistics are collected and affinity is based on this data. Administrators can, of course, approve the auto-detected affinity. The new SCCM is a user-friendly, one-stop shop for users to do common tasks. Another part of 2012 is the Software Catalog, a Silverlight-based self-service Web site that allows users to search for and request applications.

App and OS Delivery

Hand in hand with the new user focus is a new way of delivering applications to users. The idea is to capture the administrator's intent through requirement rules, deployment purpose (available or required) and deployment types. The latter can be Windows Installer, Script Installer, Microsoft Application Virtualization, Remote Desktop App or Windows Mobile Cabinet.

An administrator can define that an application should be installed natively on a user's primary device. Should the user log in to a device that's not his primary device, SCCM 2012 can distribute the app as an App-V program or Remote Desktop app

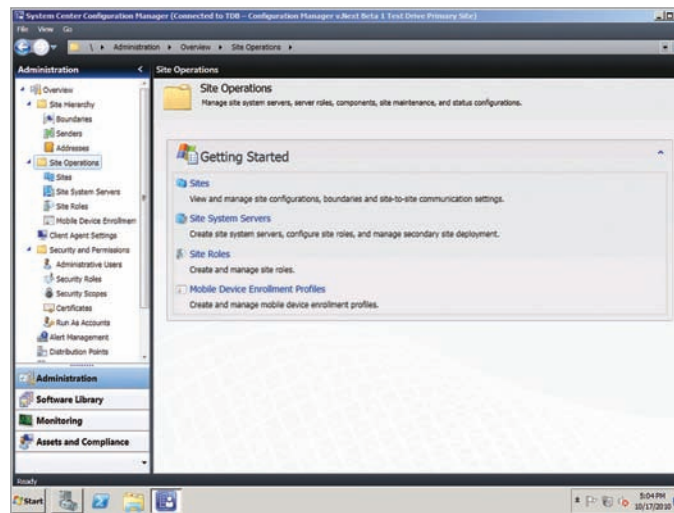


Figure 2. The SCCM 2012 console is easy to use and logically laid out.

instead. Dependencies allow you to link one app deployment to another as a prerequisite; application lifecycles are also more supported with a new “retirement of applications” feature. For testing or backup, an application can be exported in its entirety from one 2012 environment to another, and all dependent files are included in the export. Metadata about each application can be harvested from MSI files or manually entered, making it easier for users to find the right application in the Software Catalog.

In SCCM 2007, a separate Status Message Viewer was used to track software installations; in SCCM 2012, the deployment of all software (updates, compliance settings, applications, task sequences, packages and programs) is tracked under the Monitoring node.

Requirement rules are intended to minimize the need for complex collection queries for deployment and will let you set technical or business restraints on application deployments. These rules can be global and apply to any deployment type, or they can be for a specific deployment type. Requirement rules are re-evaluated every seven days to ensure compliance.

Another feature coming in beta 2 is pre-flight, where an app deployment

can be tested without actually deploying it to a client device.

The main improvement in SCCM 2012 for Operating System Deployment (OSD) is that User State Migration Toolkit (USMT) version 4 is now fully integrated into the UI; in SCCM 2007, you had to use the command line to control USMT version 4. Another improvement is hierarchy-wide bootable media, mitigating the necessity

for OSD bootable media to be duplicated in every location. Finally, offline servicing of images is now automated; updates and patches that are approved can be targeted to the image library to make sure that your OS installs are up-to-date immediately after installation. SCCM 2012 supports Intel vPro processors that offer Active Management Technology, essentially providing access to computers outside of a working OS.

New Console

The Microsoft Management Console-based console in SCCM 2007 was notoriously slow in large environments; the new “System Center framework” console certainly seems snappier, while also providing a whole new look to SCCM. Much expanding and collapsing of trees is eliminated by the fact that the middle main pane has tabs at the bottom. The new console adapts the “Outlook” metaphor with Administration, Software Library, Monitoring, and Assets and Compliance buttons in the “Wunderbar.” Yes, you read that right; that's the official term in Microsoft's documentation.

RBAC

Initially pioneered in Exchange 2007, the role-based access control (RBAC)



model for how to “do security” in large applications that are managed by many different people across an organization is also used in SCCM 2012.

RBAC is quite an intuitive approach to security. It eliminates Primary Sites as security boundaries and replaces the model used in SCCM 2007. Security roles are groupings of typical administrative tasks that are combined with groups of permissions called security scopes. This also controls the UI in the new console, so if a particular administrator shouldn't manage a site, for instance, it won't show up in the console. In beta 1 there are 13 roles defined and you can, of course, create new security roles and security scopes.

New Infrastructure

One aim of SCCM 2012 is to flatten your SCCM hierarchy and allow you to create a simpler, more modern infrastructure with fewer site system servers. As there's no in-place upgrade, you have to set up a new SCCM 2012 structure and migrate to it from SCCM 2007 SP2. Keep in mind that SCCM 2012 is x64 only, requiring 64-bit hardware and software as well as requiring Windows Server 2008 or Windows Server 2008 R2 and SQL Server 2008 SP1 (x64) or later. Reporting in SCCM 2012 relies on SQL Server Reporting Services. The only pieces of the infrastructure that can run on 32-bit OSES are distribution points.

The new piece in the puzzle is the Central Administration Site (CAS), used only for administration and reporting; you can't assign clients to it. You need a CAS if you have more than one Primary Site. If you have a single Primary Site now, you can continue with that model in SCCM 2012. Unlike SCCM 2007, Primary Sites don't provide a partition for security, client agent settings or administrative roles. The main reason to have more than one Primary Site in SCCM 2012 is

scale out: Each Primary Site supports about 100,000 clients. You also eliminate single-point-of-failure situations by having more than one Primary Site. Unlike SCCM 2007, a Primary Site can't be a child of another Primary Site; Secondary Sites, however, can be tiered.

Replication of content hierarchy now uses SQL Server replication instead of the file-based model in SCCM 2007, although file-based is still there and used for software packages, OS images and patches. This means Secondary Sites need to have a SQL Server database (the default is SQL Server Express). Data is replicated at one-minute intervals and is separated into Global data or Site data. Global data is administrator-created objects that are replicated from the CAS to all sites (Secondary Sites receive a subset). Site data is operational information created at Primary Sites, which is replicated up to the CAS but not to all other sites. A process known as Replication Configuration Monitor keeps track of database replication.

Another reason you might be able to eliminate some existing sites in your new SCCM 2012 world is that client agent settings can be customized per collections instead of at the site level. Clients can even receive multiple custom settings from multiple collections.

One thing that hasn't changed from SCCM 2007 is Active Directory schema extensions; if you've already extended your schema, you won't need to touch it for SCCM 2012 to be able to publish site information.

A new feature of Windows Server 2008 R2 is BranchCache, so if you have a Distribution Point (DP) on Windows Server 2008 R2 and your clients are on Windows 7 (Enterprise or Ultimate), consider using it. In small branch offices with fewer than 100 computers and where BITS bandwidth control is sufficient, you can use a Branch DP

and host packages on a designated workstation computer.

One site is designated as the discovery-processing site, and it will process all discovery data records, regardless of where discovery is run. This means that there's no chance of duplicating database IDs.

Alerts are new in SCCM 2012 and they're intended to help administrators in their day-to-day tasks in the console by letting them know when something's amiss; they're linked to site operations and they can, for instance, trigger if a configuration baseline falls below a defined level. Alerts don't connect to other System Center products, nor can you generate an e-mail based on an Alert.

DP groups are a way to manage content. When you add new content to a group, every DP in the group receives the content; if you add another DP, it automatically receives all previous content. SCCM 2012 lets you copy content manually to Branch DPs and standard DPs. In SCCM 2007, you could only do this for Branch DPs.

The Final Word

It's clear that this is a major overhaul of SCCM. A simpler and more efficient hierarchy should appeal to organizations relying on SCCM 2007 today, while the inclusion of mobile management, role-based security and an accessible console will charm administrators. The concepts of user-centric management and giving the end user more control, along with the improvements and flexibility in application deployment, are also sure-fire winners. **R**

Paul Schnackenburg, MCSE, MCT, MCTS and MCITP, started in IT in the days of DOS and 286 computers. He runs IT consultancy Expert IT Solutions, which is focused on Windows, Hyper-V and Exchange Server solutions.