Exploring Microsoft® SharePoint® 2013

New Features & Functions

Penelope Coventry

Exploring Microsoft SharePoint 2013
New Features & Functions

The IT professional's guide to the most significant changes in SharePoint 2013

Explore the new capabilities of SharePoint 2013 and discover how this technology can benefit your organization. Written by a leading expert and Microsoft MVP for SharePoint Server, this book provides an overview of what's new and what's changed. It also highlights features that users will find important—providing you, the IT professional, with a solid understanding of how SharePoint 2013 can help improve organizational collaboration and effectiveness.

Discover how to:

- Employ the scalable workflow framework and better manage apps
- Enhance user experience with Theme engine and Display Templates
- Enable managed navigation with search features, such as Continuous Crawl
- Consume less bandwidth with Minimal Download Strategy smart technology
- Improve user communication and collaboration with social computing features
- Author content using the web content management approach

About the Author

Penelope Coventry, MCITP, MCDST, MCTS, MCSA, MCSE, is a Microsoft MVP for SharePoint Server and an independent consultant based in the UK with more than 30 years of industry experience. She has authored and coauthored several books on SharePoint, including *Microsoft SharePoint Designer 2010 Step by Step, Microsoft SharePoint 2010 Inside Out,* and *Microsoft SharePoint 2010: Business Connectivity Services*.

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Penelope Coventry

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*I dedicate this book to my husband Peter—
where my heart lives.*

Introduction

Welcome to *Exploring Microsoft SharePoint 2013*. The purpose of this book is to point out both the new and improved capabilities of SharePoint 2013. As with previous versions of SharePoint, SharePoint 2013 contains many features with which you will be familiar; some features might not have changed at all; others will have changed, but at a high level will provide similar functionality that will not be new to you; and then there will be components that you will need time to fully understand before you can decide how they can benefit you and your organization.

With this version of SharePoint, Microsoft focuses on what a user can do, and therefore the focus of the improvements with SharePoint 2013 places users at the center of the SharePoint installation. In the coming months, as you learn more about SharePoint 2013, no longer will Microsoft talk about what SharePoint can do by using the six-segment SharePoint 2010 circle that consisted of the Sites, Communities, Content, Search, Insights, and Composites. You will hear that SharePoint 2013 provides a new way to work together and is the new collaboration platform. It will talk about how users can Share, Organize, Discover, Build, and Manage ideas and content in a SharePoint environment. Following is a description of each of these concepts:

- **Share**   You can share when talking about your content and information, spreading it socially, spreading it online, spreading it easily across multiple places and devices where you might need to interconnect, whether it is on-premises, mobile, on a tablet in a cloud, or at a client site.

- **Organize**   This is how you structure and categorize the information, whether it is a project, team, or information held in documents using SharePoint Office 2013 applications, such as Microsoft Outlook, Microsoft Project, and syncing your content in SharePoint to your desktop with Microsoft SkyDrive Pro.

- **Discover**   This concept includes connecting people across your organization, the discovery of insights and answers through the use of Business Intelligence, and finding what you're looking for by using enterprise search. In this version of SharePoint, Microsoft has invested a great deal of effort into the integration of enterprise search.

- **Build**   SharePoint 2013 has undergone major changes to the application model for how to build applications that are hosted on systems that are maintained by organizations on-premises, or when the systems are maintained outside of the control of an organization, in the cloud; how to publish these applications internally through a corporate catalog; and publishing them outside an organization as well as sharing them across on-premises farms and

cloud-based farms through a public store. The new application mode also makes it possible for applications to be shared within office applications by using the new Windows 8 interface-based computers, laptops, ultrabooks, tablets, and Windows Phone. These are now introduced to the Microsoft Office 2013 applications.

- **Manage**   SharePoint 2013 provides better support for managing SharePoint as a platform. It can be run in the cloud with Microsoft Office 365. It contains new archiving, eDiscovery, and case management capabilities that include SharePoint 2013, Microsoft Exchange Server 2013, and Microsoft Lync 2013.

More Info You can find more details about Office 365 at *office365.microsoft.com*.

Microsoft's aim is still for SharePoint to be a self-service product; that is, providing users with the ability to complete their tasks using no-code solutions by using the browser and Microsoft Office applications.

SharePoint 2013 consists of two products: SharePoint Foundation 2013 and SharePoint Server 2013. The exposure of two sets of functionality still exists in SharePoint Server, but is implemented using standard and enterprise client access licenses with a new licensing model. There is no longer a separate Microsoft FAST Search Server for SharePoint. You will find much of the functionality that was included in that product now incorporated as part of SharePoint 2013. Another change is that Microsoft Office Web Apps is a separate product and should be installed on servers on which SharePoint is not installed. Also, if your organization is a heavy user of SharePoint to automate business processes, there are changes with which you can distribute the workflow business logic onto servers where SharePoint is not installed.

As usual, the user interface has changed, but only slightly, as detailed in the following list (see also Figure I-1):

- The ribbon is still there but not automatically visible when the Browse tab is active.

- Some of the components have moved. For example, the Site Actions tab has been replaced by a Settings icon that is now in the upper-right corner of the page.

- Some components are no longer displayed. For example, the navigation up icon and the portal connection link are still placed on the master page, but the default CSS rules prevent them from being shown.

Hopefully, you will consider that these changes are minor, and as you pilot your upgrade to Share-Point 2013, the user feedback will confirm that it will not be necessary to formally retrain your users when you do upgrade.
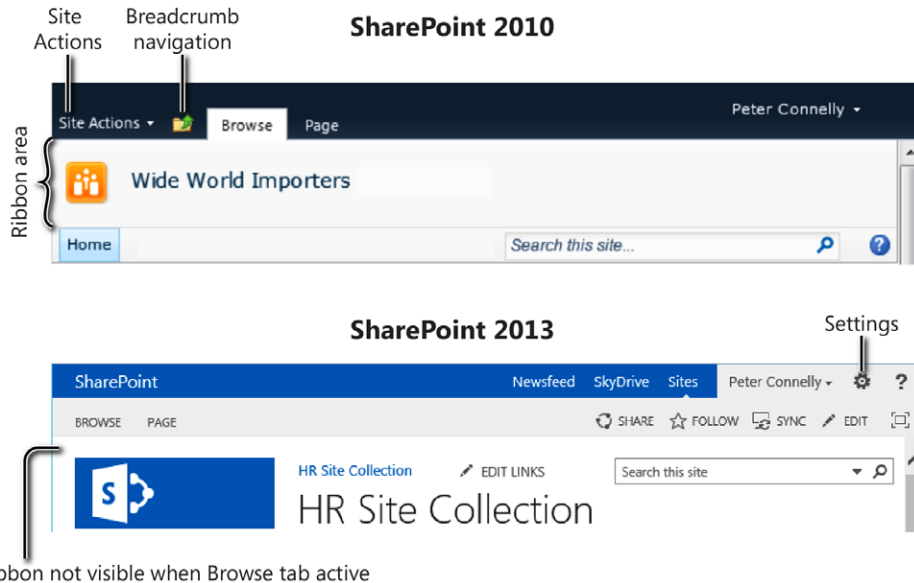
Figure I-1 Comparing the SharePoint 2010 user interface to the new SharePoint 2013 user interface.

Who this book is for

Although this book offers an overview of the new features of SharePoint 2013 from the perspective of an IT professional, it also introduces features that are important to the end user and business user. This should foster a solid understanding of why your organization might want to install or upgrade to SharePoint 2013 and help in the conversations you might have with these users.

This book does not provide step-by-step instructions on how to install or complete tasks by using SharePoint 2013 or provide an in-depth coverage or analysis of the new functions. Those details you can find in the following Microsoft Press books:

■ *Microsoft SharePoint 2013 Plain & Simple* by Johnathan Lightfoot, Michelle Lopez, and Scott Metker, which is aimed at end users who are new to SharePoint.

■ *Microsoft SharePoint 2013 Step by Step* by Olga Londer and Penelope Coventry, which is aimed at new and intermediate end users.

■ *Microsoft SharePoint 2013 Inside Out* by Darvish Shadravan, Penelope Coventry, Tom Resing, and Christine Wheeler, which is aimed at intermediate and advanced power end users (who are also referred to as *citizen* or *consumer developers*). This book is also aimed at project managers, business analysts, and small business technicians.

- *Microsoft SharePoint 2013 Administrator's Companion* by Brain Alderman, which is aimed at IT Professionals.

- *Microsoft SharePoint 2013 App Development* by Scot Hillier, Ted Pattison, and Mirjam van Olst, which is aimed at professional developers.

- *Microsoft SharePoint 2013: Designing and Architecting Solutions* by Shannon Bray, Miguel Wood, and Patrick Curran, which is aimed at IT Architects.

Regardless of your role, I hope this book helps you to discover the features in SharePoint 2013 that are most beneficial for you.

Assumptions about you

This book is designed for readers who have experience installing Microsoft products. In a book of this size, it cannot cover every feature; therefore, it is assumed that you have some familiarity with Share-Point already. The focus is on the new functionality incorporated in SharePoint 2013 and is likely to appeal to readers who have knowledge of installing SharePoint 2010 and the functionality it provides.

Organization of this book

This book provides a high-level preview of the various new or changed features you might want to use in SharePoint 2013. This book is structured so that you as an IT professional understand the architectural changes before detailing features that the business might need you to install.

Chapter 1, "Architectural enhancements," discusses the critical infrastructure and service application improvements, including support for mobile devices, SharePoint development and changes, and Identity Management.

Chapter 2, "Introducing the new search architecture," deals with the new search user interfaces. Relevancy, search architecture, and topology are introduced.

Chapter 3, "Enterprise Content Management," covers records management and compliance, web content management, including the new Web Designer, and developer enhancements.

Chapter 4, "Social computing," discusses the user interface improvements to My Site, microblogging, activity feeds, Community Sites, and the User Profile Service Application process.

Chapter 5, "Building composite solutions," explores the improvements in Business Connectivity Services (BCS), Access Services Application, Workflow, and changes to Microsoft SharePoint Designer 2013.

Chapter 6, "Business Intelligence," examines the enhancements in Microsoft Excel 2013 SharePoint integration, including PowerPivot and Power View, Excel Services, Performance Point Services, and Visio Services.

Acknowledgments

It is never easy to write a book, especially one that covers such a vast subject area. Although I have been working with SharePoint for more than a decade—and with SharePoint 2013 for more than a year—it is still true to say that this book, as every other technical book, contains a snapshot of what the author knows at this particular moment. I'm happy to have the opportunity to share the knowledge I have gained so far with you. And, I'm also happy to pass along my thanks and appreciation to everyone in the SharePoint community who helped to bring this all about.

First, I'd like to include special thanks to Kenyon Brown, Microsoft Press Senior Editor, who offered me the opportunity to write this book and yet again kept me on track, and to Steve Smith of Combined Knowledge and Brian Alderman of MicroTechPoint for their assistance. Also, I would particularly like to thank Neil Hodgkinson (Technical Reviewer), for his invaluable insights and guidance. Knowing that he was reviewing the content was a great comfort and his contributions have made this a better book.

Huge thanks go out to the following people for contributing to the production of this project: Rachel Steely (O'Reilly Media Production Editor), Bob Russell of Octal Publishing, Inc. (Copyeditor), and all of the other people at O'Reilly Media who helped with the production of this book.

Last but certainly not least, my biggest thank you goes to my husband Peter Coventry for his continued support while I wrote this book. For his love, support, and understanding, I am forever grateful.

Support & feedback

The following sections provide information on errata, book support, feedback, and contact information.

Errata

We've made every effort to ensure the accuracy of this book and its companion content. Any errors that have been reported since this book was published are listed on our Microsoft Press site:

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Architectural enhancements

Microsoft SharePoint 2013 is built on similar architecture to that of SharePoint 2010; therefore, the architectural scenarios that you will use for SharePoint 2013 have not changed much. There are still web servers, application servers, and Microsoft SQL servers on which data is stored. Logically, a SharePoint farm consists of a number of web applications, and each web application can consist of one or more site collections. A site collection can have one or more sites and can be stored in one content database. A content database can contain more than one site collection. Sites are created from templates and contain lists and libraries.

As the following list indicates, the way you install and manage your SharePoint farm will also be familiar to you:

- Plan your topology, security accounts, and so on.

- Install the binaries on your SharePoint servers after you have installed any prerequisite software and hotfixes, such as Microsoft .NET Framework 4.5, Windows Identity Foundation and Extensions, Windows Server AppFabric, and Microsoft WCF Data Services.

- After SharePoint is installed, run the SharePoint Products Configuration Wizard to create a SharePoint 2013 farm, the configuration database, and the Central Administration website.

- Register your managed accounts, and create your service applications and web applications as needed. As with SharePoint 2010, you should only use the configuration wizard on the Central Administration website if you are building a development environment.

> **More Info** You can find an overview of the deployment process at *technet.microsoft.com/en-us/library/ee667264.aspx*.

> **Note** As with SharePoint 2010, you can install and manage your SharePoint farm by using Windows PowerShell cmdlets; the only difference is that there are more of them in SharePoint 2013. The stsadm command-line tool is also still available but contains no enhancements over the version available in SharePoint 2010.

As with other SharePoint 2013 web applications, the Central Administration website sports a new look, as shown in Figure 1-1. When the Browse tab is active, neither the ribbon nor the navigation breadcrumbs are displayed. To navigate to the home page, at the top of the Quick Launch list, click either Central Administration or the icon just above it.
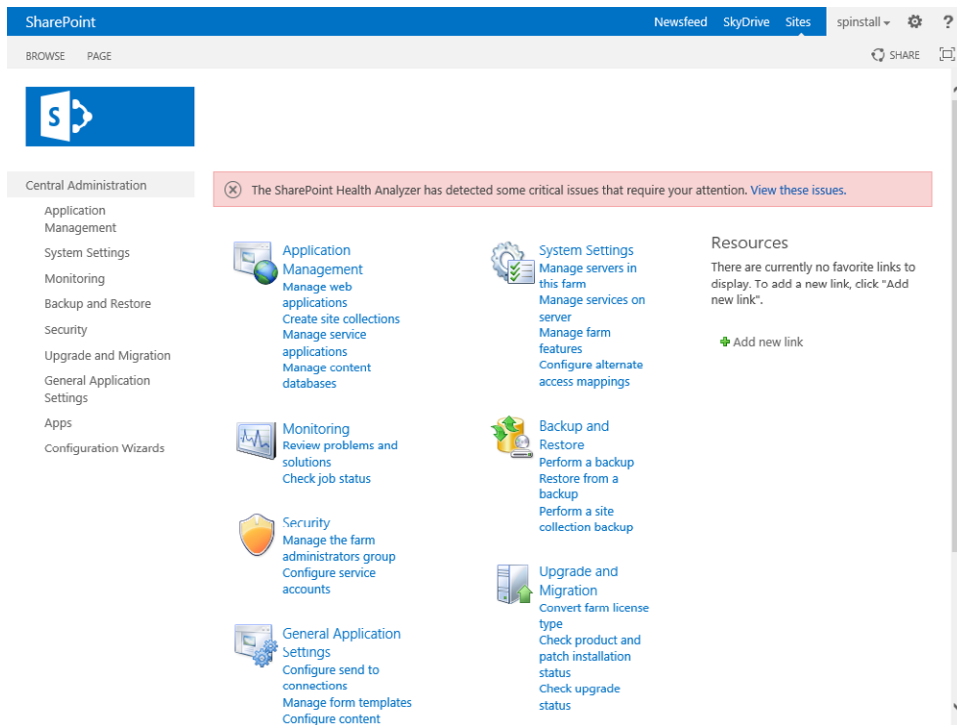
FIGURE 1-1 The SharePoint Central Administration website.

Many of the architectural enhancements you will see within Microsoft SharePoint 2013 were, for the most part, there in SharePoint 2010. The biggest single change for multi-tenancy support is search followed by Managed Metadata Service (MMS), which have made it possible for Microsoft to extend the hosting of SharePoint Online within its Office 365 service offering. These changes provide Microsoft with the opportunity to reach a vast new customer base and ensure that its customers receive the latest that it has to offer, quickly, while still keeping the users productive.

This chapter provides an overview of the architectural changes of SharePoint 2013. It details the infrastructure improvements and service applications that are new in SharePoint 2013, as well as those that are deprecated or changed, and what's new with web applications and site collections. This chapter also details the new application model and the introduction of the SharePoint App Catalog. The chapter finishes by discussing how to upgrade from SharePoint 2010 to SharePoint 2013.

Infrastructure improvements

Because the core infrastructure has not changed significantly, the infrastructure changes are progressive rather than revolutionary. There are, however, a number of platform-level improvements and capabilities of which you can take advantage, such as the following:

- Information storage in databases.

- Routing incoming user requests to specific or healthier web servers.

- Workflows with the introduction: a new, highly scalable workflow framework.

- User experience (UX) improvements.

These improvements are discussed in more detail in the next subsection.

> **Note** SharePoint 2013 must be installed on a server that is running the 64-bit edition of Windows Server 2008 R2 Service Pack 1 (SP1) or the 64-bit edition of Windows Server 2012. You can find information on the hardware and software requirements for SharePoint 2013 at *technet.microsoft.com/en-us/library/cc262485(v=office.15)*. When you first look at the memory requirements, these might seem larger than those you are used to for a SharePoint 2010 installation; however, they are in line with guidelines that most SharePoint experts would recommend for SharePoint 2010.

Database improvements

Two areas in which major improvements have taken place in SharePoint 2013 are the following:

- Taking advantage of Microsoft SQL Server functionality.

- Using shredded storage reduces the size of content databases when storing file versions and optimizes network traffic by reducing the need to transfer the entire document at one time.

SQL Server-related improvements

You can use SharePoint 2013 with either the 64-bit edition of Microsoft SQL Server 2008 R2 SP1 or Microsoft SQL Server 2012. SQL Server 2012 is Microsoft's latest cloud-ready information platform. It extends the functionality found in Microsoft SQL Server 2008 R2.

> **Note** To test the Business Intelligence capabilities available in the Microsoft Office 2013 and SharePoint 2013, SQL Server 2012 SP1 is required.

SharePoint 2013 database improvements include the following:

- All databases conform to Microsoft SQL Azure compliance criteria.

- Redundant and unused tables are removed as well as indices to track links.

- The design reduces Input/Output (IO) operations while browsing document libraries.

- Simplified database schema and optimized data access. In SharePoint 2010, when a list contains more columns than can fit in a row in the content database, multiple rows are used. Such a list is known as a wide list. The occurrence of these lists is reduced in SharePoint 2013, which uses features such as sparse columns that was first introduced with SQL Server 2008. You can gather more information on sparse columns at *msdn.microsoft.com/en-us/library/ cc280604.aspx*.

- Improved large-list dependency.

> **Note** Business Intelligence capabilities are described in Chapter 6, "Business Intelligence."

Shredded storage

This enhancement reduces the amount of data that is saved within the SQL Server content databases and reduces the amount of network traffic between the SharePoint web servers and the SQL servers. This should also reduce the time needed to back up the content databases.

In SharePoint 2010, when a user wants to save multiple versions of a document, entire files are saved—one file for each version that you want to save. If a user downloaded a 200-KB Microsoft Word document from a SharePoint 2010 document library and then changed just one character in a sentence, the single change between the two files is not saved; instead, two 200-KB files are saved in the content database.

Bandwidth improvements are possible when Microsoft Office 2010 and SharePoint 2010 are used together to modify XML-based Office file formats, such as .docx, .xlsx, and .pptx files. When a user modifies one of these documents by using a Microsoft Office 2010 application, using the File Sync via SOAP over HTTP (MS-FSSHTTP) protocol locks portions of a file and downloads the file into the Office 2010 local file cache, the Office Document Cache (ODC). The ODC resides on the user's computer. The Office application opens the document from the ODC. When a user saves the document back to SharePoint, the Office application saves the document into the ODC and then uses the MS-FSSHTTP protocol to upload only the file differentials asynchronously in the background to the SharePoint server.

> **Note** You can access and manage the ODC settings and features through the Upload Center, which is automatically installed with Office 2010.

Because SharePoint 2010 is unable to send the modifications from the SharePoint server to the SQL server by using the MS-FSSHTTP protocol, SharePoint must incorporate those changes into the document on the SharePoint server. Then, the entire document is sent across the network to the SQL server, where it is saved into the content database.

SharePoint 2013 can now use MS-FSSHTTP not only when communicating with applications running on a user's computer, but also when communicating with SQL servers. Now, only the changes made while editing a file are stored in the content database. This is known as *shredded storage*, and it makes the following possible:

- A user can open a previously cached document, even if the SharePoint server is offline or not available.

- Network utilization is reduced, which improves both performance and costs.

- Users can start working with the document before it is completely downloaded.

- When a user saves a document to SharePoint, the document is uploaded to the server in the background; thus it seems as if the save happens immediately and control of the application is returned to the user nearly instantaneously, providing a great UX.

> **Note** For binary file types such as .doc, .ppt, and .xls, shredded storage is accomplished by using the Remote Differential Compression (RDC) feature, which was first introduced with Windows Server 2008. The RDC feature is not enabled by default. With earlier versions of Office, such as Office 2007, BranchCache could be used to reduce bandwidth utilization and download times for frequently accessed content, but as with MS-FSSHTTP with Office 2010, BranchCache does not reduce the amount of network bandwidth that is used when a file is saved to the content database. If both BranchCache and MS-FSSHTTP are available, MS-FSSHTTP will be used. For more information on SharePoint 2010, BranchCache and MS-FSSHTTP, go to *blogs.msdn.com/b/michaelp/archive/2010/06/12/does-sharepoint-2010-support-branchcache.aspx*.

When two users edit the same document simultaneously, SharePoint uses the same multimaster conflict used in co-authoring for the Office Web Applications. Thus, when two users change different sections in the document, the changes will be merged; if they change the same sections, the users will need to resolve the conflict.

Now, in SharePoint 2013, SharePoint does not need to merge the changes—only the changes go to the SQL server. Moreover, it is also not limited to Office-formatted files; it will work on any file type, such as PDFs. The SQL Server is able to manage the changes because the document is now not saved as one blob. Instead, it's saved as multiple blobs. In SharePoint 2013, there is no concept of duplication. The new version of a file is not a complete copy of a file. Therefore, in SharePoint 2013 you can expect the size of your content databases to go down.

Be aware, however, that when you upgrade from SharePoint 2010 to SharePoint 2013, your content databases do not automatically reduce in size. Shredded storage will only be used the next time the user needs to modify a file, after the upgrade has been implemented.

> **More Info** To learn more about shredded storage, read Bill Baer's blog posts at *blogs.technet.com/b/wbaer/archive/2012/12/20/shredded-storage-and-the-evolution-of-sharepoint-s-storage-architecture.aspx and blogs.technet.com/b/wbaer/archive/2012/11/12/introduction-to-shredded-storage-in-sharepoint-2013.aspx.*

Request management

When most organizations implement a web-based solution, for resiliency and scalability they also implement it with a hardware or software load balancer, which routes incoming user requests at a network level to web servers. However, such a configuration might not meet the entire needs that an organization requires. This is where the SharePoint 2013 Request Management feature can be useful in large deployments because it routes incoming requests at the application level. With Request Management, SharePoint can refuse or redirect HTTP requests individually within the farm to dedicated or different servers in the farm for specific workloads. This means that you can configure the farm so that the availability and responsiveness of the web servers that are satisfying requests for web pages from the majority of your users are not compromised.

> **Note** A SharePoint web server is a server that runs the SharePoint Foundation Web Application Service (SPFWA). On such servers, the Request Management service instance is installed but not started by default.

SharePoint can now recognize the origin of incoming requests; for example, from external search engines, from different types of browsers, or specific applications. SharePoint can then reduce the priority of certain requests and raise the priority of others, depending on different criteria. SharePoint can look at the packet headers, the requester's IP address, or subnet and decide to block that request, redirect it to another server, SharePoint farm, or web application.

Request management rules

Request management rules are applied per web application and are either throttling or routing rules. No rules are enabled by default. Throttling rules are always evaluated before routing rules, and if the incoming HTTP request matches the criteria, the request is refused.

Routing rules have a set of properties such as an expiration time. Routing rules are associated with execution groups 0, 1, 2, and so on. You can have as many execution rule groups as you need. Rules in execution group 0 are evaluated before rules in execution group 1, which are evaluated before rules in execution group 2, and so forth. Each routing rule is associated with a machine pool, which

contains one or more SharePoint web servers. Each server within a machine pool—known as a rout-ing target or routing machine—has a static weighting and a health weighting, as specified in the following:

- A static weight, as the name implies, is a constant that you can use to identify powerful or weak servers.

- A health weight is evaluated dynamically by Health Analysis and is a score from 0 to 10.

If an HTTP request matches all the criteria for a routing rule, that request is routed to the associ-ated machine pool, where it is prioritized and load balanced between the target machines. When a rule contains more than one criterion, they are joined by using an AND.

It is common practice that the last execution group contains a catch-all rule (*) that is used to process incoming request that do not meet the criteria specified in earlier rules and route them to a specific machine pool. You should not have a * rule as the first rule, because the incoming HTTP request will never be processed against subsequent rules.

If you decide not to have a catch-all rule, when an incoming request does not match any rule, the request is routed to any server in the farm that is not in a machine pool, based on the health of the servers. This might be a reason to turn on Request Management with no rules, execution groups, or machine pools in your farm, because this will prompt SharePoint to route requests according to what it believes to be the healthiest server.

> **Note** When you route an HTTP input request to a machine pool, you need to ensure that the appropriate service that is needed to process the input request is active on at least one of the servers in the machine pool. Otherwise, the request will not be processed.

Request Management Criteria

The criteria for throttling and routing rules use the following HTTP request header properties:

- *CustomHeader*

- *Host*

- *HttpMethod*

- *IP*

- *SoapActio*n

- *Url*

- *UrlReferrer*

- *UserAgent*, such as a Microsoft Office OneNote client application

The criteria operators, known as *MatchTypes*, are as follows:

- *EndsWith*

- *Equals*

- *Regex*

- *StartsWith*

Creating and managing Request Management

There is no administrative user interface for Request Management. The creation of rules, the setting of rule properties, execution groups, and machine pools are managed by using SharePoint Windows PowerShell cmdlets. To create your first routing rule, perform the following steps:

1. Get a reference to the necessary web application and save it in a variable:

   ```
   $webapp = Get-SPWebApplication http://intranet.adventure-works.com;
   ```

2. Get the reference to the Request Management settings object for the web application and save it is a variable:

   ```
   $rmsettings = Get-SPRequestManagementSettings $webapp;
   ```

3. Create a machine pool:

   ```
   $MachTargets = @("SP1");
   $machpool_1 = Add-SPRoutingMachinePool -RequestManagementSettings $rmsettings '
       -Name "Machine Pool 1" -MachineTargets $MachTargets;
   ```

4. Create one or more rule criteria to match all .docx files:

   ```
   $RMrulecriteria = New-SPRequestManagementRuleCriteria -Property Url '
       -MatchType Regex -Value ".*\.docx"
   ```

5. Create a routing rule and then associate it with execution group 0, a machine pool, and the criteria:

   ```
   $DocRule = Add-SPRoutingRule -RequestManagementSettings $rmsettings -Name "DocRule" '
       -ExecutionGroup 0 -MachinePool $Machpool_1 -Criteria $RMruleCriteria
   ```

To view the Request Management settings for the web application, type the following command (the output for the command is also shown):

```
Get-SPWebApplication http://intranet.adventure-works.com | Get-SPRequestManagementSettings
```

```
Name                     :
MinimumCacheRefreshTime  : 00:00:15
RoutingEnabled           : True
RoutingScheme            : Default
RequestBufferLength      : 524288
```

```
MaxRequestBufferCount               : 1000
RequestTimeout                      : 00:01:40
RoutingHealthScoreDepreciationTime  : 00:00:02
PingInterval                        : 00:00:02
PingAvailabilityThreshold           : 0.333333333333333
PingFailureLimit                    : 3
PingPassLimit                       : 1
ThrottlingEnabled                   : True
RoutingRules                        : {DocRule}
ThrottlingRules                     : {}
MachinePools                        : {Machine Pool 1}
RoutingTargets                      : {SP1}
IsInitialized                       : True
TypeName                            : Microsoft.SharePoint.Administration.SPRequ
                                      estManagementSettings
DisplayName                         :
Id                                  : c44640c7-28d2-428c-b4e6-db7665accf62
Status                              : Online
Parent                              : SPWebApplication
                                      Name=intranet.adventure-works.com
Version                             : 9560
Properties                          : {}
Farm                                : SPFarm Name=SP2013_Config
UpgradedPersistedProperties         : {}
```

Workflow framework

SharePoint 2013 introduces a new, highly scalable workflow framework that is implemented by using the Workflow Manager, originally known as Windows Azure Workflow (WAW). In SharePoint 2013, the Workflow Manager farm is not installed by default. Therefore, a default installation of Share-Point 2013 can only use the same workflows that can be used in SharePoint 2010. When the Workflow Manager is installed, you can run both SharePoint 2010 and SharePoint 2013 workflows.

In SharePoint 2010, workflows run on the servers on which SharePoint is installed; that is, they run within the SharePoint farm. If your organization is a heavy user of workflows, this can have a detrimental effect on the performance of your farm because it is difficult to scale and distribute the SharePoint workflow components. SharePoint 2013 uses the same mechanism of managing Share-Point 2010 workflows as SharePoint 2010 and therefore suffers from the same limitations. There are no enhancements to SharePoint 2010 workflows in SharePoint 2013, you have the same actions and conditions as in SharePoint 2010, and they are built on Microsoft .NET Framework 3.5.

> **Note** The new workflow framework is not designed to work with Microsoft SharePoint Foundation 2013, and therefore with SharePoint Foundation you can only use and create SharePoint 2010 workflows.

A Workflow Manager farm can be installed on your SharePoint servers or on any servers, how-ever, it is not good practice to install it on domain controllers. With SharePoint 2013, if you are a heavy user of workflows, you should consider creating a Workflow Manager farm separate from your

SharePoint farm. Thus, you should install Workflow Manager on one or more servers that do not have SharePoint installed. However, be aware that SharePoint 2010 workflows will still run on your SharePoint 2013 servers in the legacy SharePoint workflow engine, also known as the SharePoint 2010 workflow host.

Only SharePoint 2013 workflows can make use of the Workflow Manager farm. Within SharePoint 2013 workflows, only those activities built on .NET Framework 4.5 and Windows Workflow Foundation 4 run within Workflow Manager. When a SharePoint 2013 workflow needs to use any Windows Workflow Foundation 3 artifacts, control is passed back to the SharePoint 2010 workflow host in SharePoint 2013. When the SharePoint Windows Workflow Foundation 3 process is complete, control returns to Workflow Manager.

SharePoint 2013 does not contain any SharePoint 2013 workflow templates only SharePoint 2010 workflow template. Using the browser, users create workflows from workflow templates, and instances of those workflows run against SharePoint objects, such as a SharePoint site, list item, or document. Therefore, when you first use SharePoint 2013, even if you have installed a Workflow Manager farm, it will not be used because your users will not be able to create any SharePoint 2013 workflows or run any SharePoint 2013 instances. SharePoint 2013 workflows and SharePoint 2013 workflow templates need to be created before you can take advantage of the Workflow Manger farm.

> **More Info** You can read about creating workflows by using Microsoft SharePoint Designer 2013 or by using Visual Studio 2012 in Chapter 5, "Building composite solutions." That chapter also compares SharePoint 2010 workflows with SharePoint 2013 workflows.

Workflow Manager architecture

As with many of the other SharePoint 2013 enhancements, the driving force for the new workflow framework was designing it to support SharePoint online and multitenant applications, overcoming the significant challenges such environments pose in terms of isolation, scale, and resource management. The high-level architecture of the workflow is displayed in Figure 1-2.

The Workflow farm consists of two components: the Workflow Manager and a service bus that facilitates the communication among components within the farm by using the Open Authentication (OAuth protocol). The service bus is a messaging platform that has been running in Azure for some time that now can run on on-premises servers. The Workflow Manager uses the service bus as its core state management and messaging layer. All communication between SharePoint and the Workflow Manager is message based using a well-defined contract for events and management operations happening from SharePoint into the Workflow Manager using a series of Representational State Transfer (REST) HTTP calls. Therefore, the service bus is used for reliable message delivery and a message broker that also keeps the message state and workflow instance state consistent.
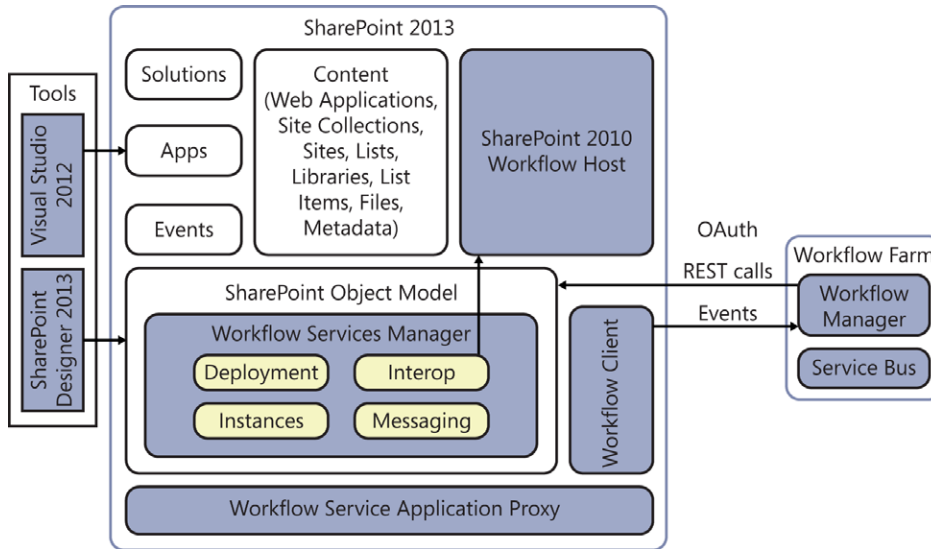
FIGURE 1-2 The workflow architecture is divided between the SharePoint 2013 infrastructure and the Workflow Manager infrastructure.

SharePoint 2013 contains a new component known as the Workflow Services Manager, which is the integration layer between SharePoint and the Workflow Manager. The Workflow Services Manager connects to other SharePoint services by using the Workflow Service Application Proxy and connects to the Workflow Manager via the Workflow Manager Client. You can install the Workflow Manager on the same servers as SharePoint, in which case the Workflow Manager Client is automatically installed as part of the Workflow Manager installation, known as the *colocated model*. You can also install Workflow Manager on servers that do not have SharePoint installed—the *federated model*—in which case you will need to install separately the Workflow Manager Client on SharePoint servers that are responding to web requests, so that they can communicate with the Workflow Manager. You can build a federated workflow farm to achieve high availability by joining three servers to the farm because they work like a mirror with a witness; that is, the servers need to achieve a quorum (you can do this with just two servers).

> **More Info** To learn more about the service bus architecture, go to *technet.microsoft.com/ en-us/library/72646b45-646f-4dfb-ab52-e42f187655e7(v=azure.10)*.

The Workflow Services Manager contains a number of services:

- **Deployment** This service manages workflow definitions. This is the service that deploys workflows you create in SharePoint Designer when you click the Publish command or when in the browser you associate a workflow template in the browser with SharePoint components, such as lists, libraries, content types, and sites.

- **Messaging** This service takes events, such as when properties of a document change, and sends them as messages to the Workflow Manager. This Messaging service is also exposed to Apps. This makes it possible for Apps to have custom messages; for example, you can define a custom message from an external application that can be sent to a workflow and you can have a workflow that subscribes to that message.

- **Instance** This service manages workflow instances. Therefore, it is this service that is used to obtain workflow instance status information, or if you wish to terminate a workflow instance.

- **Interop** This service invokes SharePoint 2010 workflows.

The Workflow Manager farm uses new SharePoint REST endpoints to communicate back to the SharePoint farm by using the App model API. Therefore, SharePoint 2013 workflows use the same set of services as Apps to complete their tasks.

All communications with the workflow farm uses either the HTTP or HTTPS protocol. On servers within the workflow farm, within Internet Information Server (IIS) Manager, you will see one application pool, WorkflowMgmtPool, and one site, Workflow Management Site. A Workflow Manager server also contains the following four Windows NT services:

- Workflow Manager Backend

- Service Bus Message Broker

- Service Bus Gateway

- Windows Fabric Host Service

When a workflow farm is created, six databases are created on an SQL Server:

- Workflow databases:

  - WFManagementDB

  - WFInstanceManagementDB

  - WFResourceManagemetDB

- Service bus databases:

  - SBManagementDB

  - SbGatewayDatabase

  - SBMessageContainer01

The Workflow Manager farm provides no native support for high availability at the storage layer. You can use your own solution, such as SQL Server mirroring.

Installing a Workflow Manager farm

Before installing a Workflow Manager farm, you must have the following:

■ Access to an SQL Server on which the Workflow Manager databases can be created, such as an instance of SQL Server 2008 R2 SP1, SQL Server Express 2008 R2 SP1, or SQL Server 2012.

■ Relevant port numbers. The default ports numbers are 12290 and 12291.

■ A mixed IPv4/IPv6 environment. The Workflow Manager installer available for SharePoint 2013 only works with IPv4 and not in pure IPv6 environments.

■ A Workflow Manager installer that matches the build number of SharePoint 2013 with which you want to use it.

> **Note** The Workflow Manager installer uses the Web Platform Installer (Web PI) to initiate the installation steps. You can find the Workflow Manager at *go.microsoft.com/ fwlink/?LinkID=252092*. You can find the Workflow Manager Client, which is only needed on SharePoint servers that respond to web requests and do not have the Workflow Manager installed, at *go.microsoft.com/fwlink/?LinkID=258749*.

■ Access to the Internet for the computers on which you are installing Workflow Manager; otherwise, you need to download and install the prerequisites prior to running the Workflow Manager installer.

■ A service account known as the RunAs account, that must have read/write access to the SQL Server.

■ An account to install and configure the Workflow Manager added to the local administrators group on each server that will be a node in the Workflow Manager farm.

> **Tip** For the communication between SharePoint and the Workflow Manager using web protocols, you can use web debugging tools such as Fiddler. In such debugging scenarios it is helpful to use the same service account for the Workflow Manager as is used for the application pool ID for your web application. You can read more about debugging workflows with fiddler at *www.andrewconnell.com/blog/archive/2012/07/18/sharepoint-2013-workflow-advanced-workflow-debugging-with-fiddler.aspx*.

The Workflow Manager installer checks for any prerequisites and installs any that it does not find. After the binaries are installed, the Workflow Configuration Wizard starts (you can also start it manually at any time).

When you install the Workflow Manager on the first server, you create a workflow farm. You are asked which SQL server instance to create the farm databases, the service account, and to provide a Certification Generation Key, which has a similar function to the passphrase in a SharePoint farm. You

will need this key when you join subsequent servers to the workflow farm. Each server within a workflow farm is known as a *workflow node.*

When adding more than one server to a workflow farm, you need to edit the Domain Name System (DNS) and install load balancers so that any workflow node can respond to a request from your SharePoint farm.

After the workflow farm is created, you then need to register the farm with your SharePoint farm by running a Windows PowerShell cmdlet similar to the following on one of the servers in your SharePoint farm:

```
Register-SPWorkflowService –SPSite http://intranet.adventure-works.com –WorkflowHostUri
http://wmnlbname:12291 –AllowOauthHttp
```

In the preceding example, http://intranet.adventure-works.com can be any of the web applications that are created in the SharePoint farm. After this command is successfully executed, the Workflow Service Application Proxy will be started in the SharePoint farm, as illustrated in Figure 1-3.
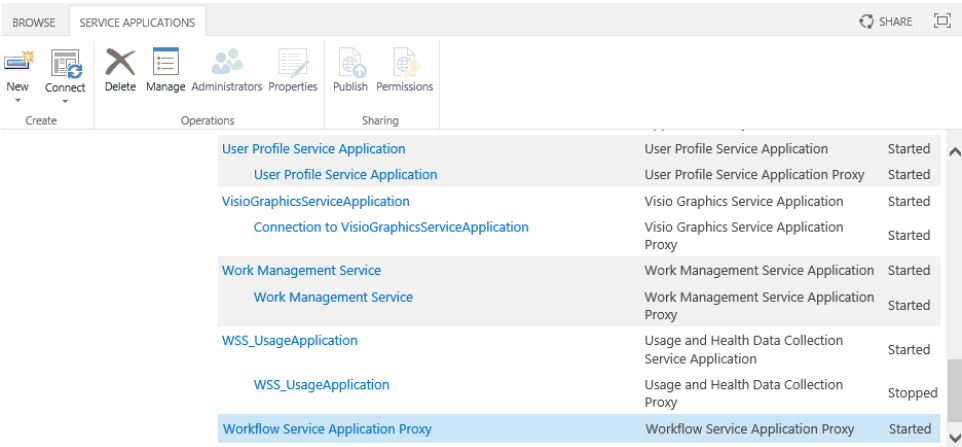
FIGURE 1-3 The Windows Service Application Proxy.

Note If the SharePoint server on which you run this command is not a workflow node in your workflow farm, you will need to install the client version of Workflow Manager to run the command successfully. The *–AllOAuthHttp* is only needed if you are using the HTTP protocol to communicate between the two farms. In a production environment, you should use HTTPS.

Monitoring a Workflow Manager farm

Typical ways to monitor the Workflow Manager farm are similar to other Microsoft products, including the following:

- **Performance counters**   Each server on which Workflow Manager is installed contains the "Workflow Management" and "Workflow Dispatcher" counter sets.

- **Event Tracing for Windows (ETW)**   Workflow Manager contains an ETW provider named Microsoft-Workflow and three ETW channels: Operational, Debug, and Analytic. You can find a complete list of events generated by Workflow Manager in the ETW manifest file located in the C:\Program Files\Workflow Manager\1.0\Workflow folder. You can use the Event Viewer to examine the logs, which you can find in the Microsoft-Workflow node under the Application and Services node, as depicted in Figure 1-4.
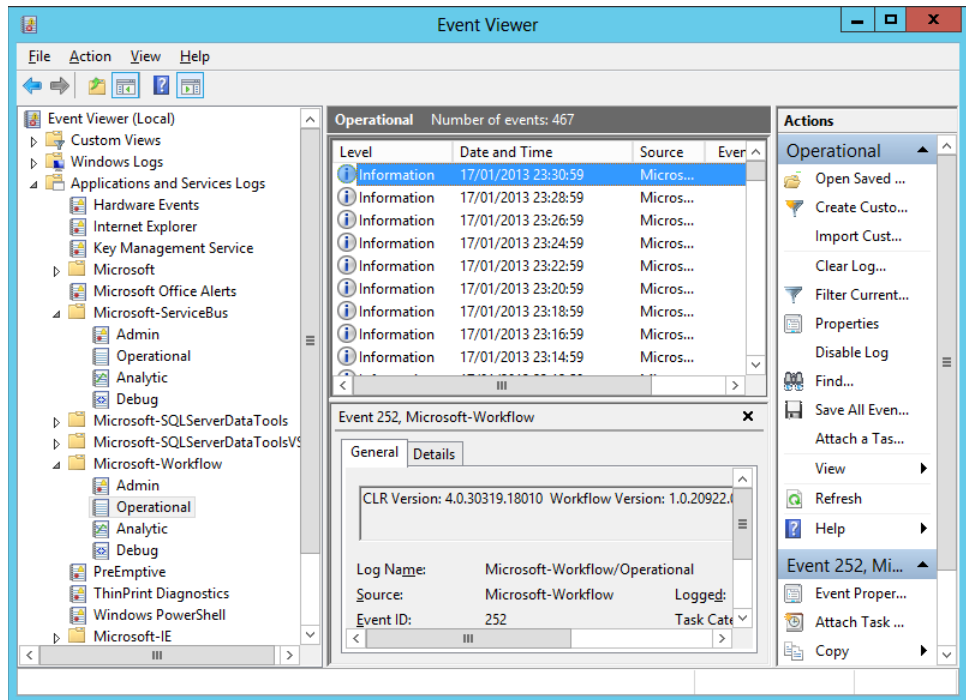
FIGURE 1-4 You can use the Event Viewer to exam Workflow Manager logs.

> **Note** If no event logs are visible within the Event Viewer, you might need to enable the analytic and debug logs. To do so, right-click in the event window, and then in the options menus that opens, click View and then click Show Analytic And Debug Logs.

- **Windows PowerShell**   Like many other products, when Workflow Manager is installed, a shortcut is provided to a Windows PowerShell command window that automatically executes the relevant Windows PowerShell module so that the product-specific cmdlets are available. Workflow Manager is no different. Use the *Get-WFFarm* cmdlet to retrieve all details about your workflow farm.

- **Microsoft Workflow Manager Management Pack for System Center Operations Manager**   This is available for download and supports both System Center Operations Manager (SCOM) 2012 as well as SCOM 2007 R2. Before you can import the Workflow Manager Management Pack into SCOM, both the SQL Server 2012 and Microsoft Service Bus Management Packs must be imported. You can find the Microsoft Workflow Manager Management Pack at *systemcenter.pinpoint.microsoft.com/en-US/applications/search?q=workflowmanager.*

UX improvements

Microsoft has redesigned the SharePoint UX to be clean and simple. If you use a browser that supports HTML5, you can now drag files to upload them. You can also perform bulk metadata edits, quickly access document previews and context, and take advantage of single-click tracking of documents so that you can monitor your most important work. Microsoft has also made infrastructure changes that affect the speed at which content pages are rendered in the browser. These changes include the following:

- Web server caching improvements

- Introduction of a minimal download strategy

- A new Theme engine

- Improved support for mobile devices

- Implementation of HTML5 and increased web browser support

Note You can find details about other UX improvements, such as embedding and storing video and the rendering of images, in Chapter 3, "Enterprise Content Management."

Cache service improvements

In previous versions of SharePoint, each SharePoint server had its own cache. Commonly used information was stored in the server's memory. When a user requested content that used cache, the content was retrieved, for example, from the content database and saved in the memory of the SharePoint server that responded to the user's request. If the server subsequently responded to another request for the same content, the content was retrieved from memory, if it was still there, and no round trip to the content database was needed. However, if another server responded to the second request, the content would need to be retrieved from the content database, even though the content was still in the memory of the first server.

SharePoint 2013 uses a distributed caching mechanism that spans all of the SharePoint servers in the farm. Specific SharePoint components are programmed to take advantage of distributed cache; for example, social feeds, search, and authentication. Information related to these components is not cached on a per-server basis; the distributed cache mechanism is able to synchronize the data so that

the same information is available across every web server. When content is saved in distributed cache, no round trip to the content database is needed for the second request.

SharePoint 2013 Distributed Cache Service (DCS) is based on the Windows Server AppFabric 1.1 caching model. You must use the version of AppFabric that ships with SharePoint 2013 and can be extended. In a default SharePoint 2013 installation, the DCS uses the following ports:

- Cache port: 22233

- Cluster port: 22234

- Arbitration port: 22235

- Replication port: 22236

Any firewalls configured between the servers must be configured accordingly for the distributed cache to work successfully.

Components in SharePoint 2013 that use distributed cache include the following:

- **Feeds**   This cache stores activities and conversations for use by the newsfeeds on a user's My Site. The primary use of this cache is for content that you follow and the Everyone feed. (You can find an overview of microblogging, newsfeeds, and distributed cache at *technet.microsoft.com/en-us/library/jj219700(office.15).aspx*.)

- **Logon tokens**   SharePoint uses the Security Token Service (STS) to create Security Assertion Markup Language (SAML) tokens. Both claims-based web applications and inter-farm communication use STS. The logon tokens cache stores the security token, known as a *claim* or a *FedAuth* token that is issued by STS for use by any web server in the server farm. Any web server that receives a request for resources can access the security token from the cache, authenticate the user, and provide access to the resources requested. Every time a user accesses a web server, the user needs to be authenticated, which can become an issue when using multiple web servers. In SharePoint 2010, to ensure that the user stayed on the same web server, load balancing affinity—known as *sticky sessions*—was enabled. By caching the FedAuth token in the distributed cache, it is no longer necessary to enable sticky sessions, because the authentication token is now available from all web servers through the cache cluster.

- **Search**   This is used by the Content Search Web Part (CSWP), a new Web Part introduced with SharePoint 2013.

By using distributed cache for the microblog features and newsfeeds, SharePoint can provide the speed of broadcasting and quick information sharing that these two social computing components require. Distributed caching of newsfeeds removes the need for "activity gatherers" and timer jobs that used to do the role in SharePoint 2010 of gathering up events that were happening across SharePoint and delivering them to your newsfeed. All requests for newsfeeds are gathered on demand in real time, based on the current state of the social network. The social data is retrieved from the cached data, which has a life time of about a week, the My Site social databases and search index. Other than the CSWP, other Web Parts do not use distributed cache.

The AppFabric Caching Service is a Windows service that runs on a SharePoint server, as shown in Figure 1-5. Microsoft recommends that you should not administer the AppFabric Caching Service from the Services window or the AppFabric Caching Services Properties dialog box. You should use either the Central Administration website or the SharePoint Windows PowerShell cmdlets because the implementation of distributed cache that uses the AppFabric Caching Services is specific to SharePoint 2013 and must be managed through SharePoint 2013.
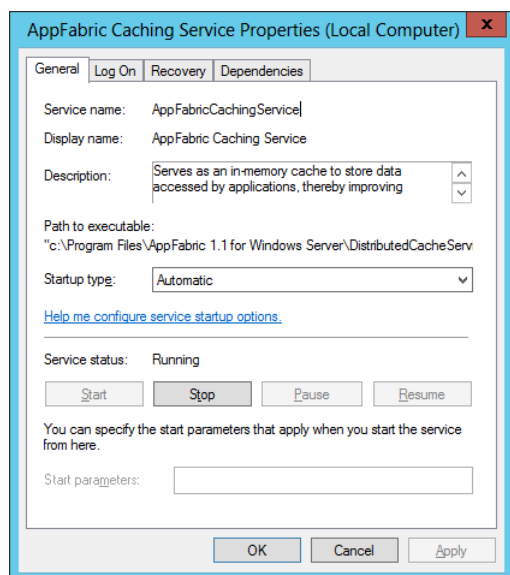
FIGURE 1-5 The AppFabric Caching Service is one of the prerequisites when installing SharePoint 2013.

For SharePoint to use the caching service, in Central Administration, go to the Services On Server page and start the Distributed Cache service, as demonstrated in Figure 1-6.

A SharePoint server on which the Distributed Cache service is started is known as a *cache host*. A group of cache hosts is known as a *cache cluster*. To have Distributed Cache working on more than one server, the first server with Distributed Cache needs to have its firewall set to allow for inbound Internet Control Message Protocol. You can find information on how to create an inbound ICMP rule at *technet.microsoft.com/en-us/library/cc972926(v=WS.10).aspx*.

Services on Server ⓘ

Service	Status	Action
Access Database Service 2010	Started	Stop
Access Services	Started	Stop
App Management Service	Started	Stop
Business Data Connectivity Service	Started	Stop
Central Administration	Started	Stop
Claims to Windows Token Service	Started	Stop
Distributed Cache	Started	Stop
Document Conversions Launcher Service	Stopped	Start

FIGURE 1-6 To join a cache cluster, in Central Administration, on the Services On Server page, start the Distribute Cache service.

When a new SharePoint server is added to the SharePoint farm, upon running the Distributed Cache service, it joins the cache cluster. The cache cluster provides one distributed cache that spans all of the cache hosts, for which the total cache size is the total memory allocated to the Caching Service on each cache host. The memory allocation for the Distributed Cache service is set to a default value of 10 percent of total physical memory when SharePoint Server 2013 installs.

> **More Info** To learn more about managing the Distributed Cache service, go to *technet. microsoft.com/en-us/library/jj219613/8v=office.159.aspx.*

Half of the memory allocation is used for data storage, known as the cache size, and the other half of the memory allocation is used for memory management overhead. When the cached data grows, the Distributed Cache service uses the entire 10 percent of the allocated memory.

The Distributed Cache service can run in one of the two following modes:

- **Dedicated mode** The Distributed Cache service is started and all other services are stopped on the server. This is the recommended mode in which to deploy the Distributed Cache service. It is recommended that no more than 16 GB of memory should be allocated to the Distributed Cache service with at least 2 GB of memory reserve for other services. The TechNet article, "Plan for feeds and the Distributed Cache service (SharePoint Server 2013)," which is available at *technet.microsoft.com/en-us/library/jj219572(v=office.15).aspx*, states that if you allocate more than 16 GB of memory to the Distributed Cache service, the server might unexpectedly stop responding for more than 10 seconds.

- **Colocated mode**   The Distributed Cache service is started along with other services on the server. However, it is not recommend that any of the following services or applications run on the same server as the Distributed Cache service:

  - SQL Server 2008 or SQL Server 2012

  - Search service

  - Excel Services in SharePoint

  - Project Server services

  It is recommended that when running the Distributed Cache in colocated mode, all non-essential services should be shut down to reduce the memory competition.

AppFabric provides administrative tools on the Start menu, as illustrated in Figure 1-7. You should not use these applications to manage the Distributed Cache service. Instead, use the SharePoint 2013 Management Shell.
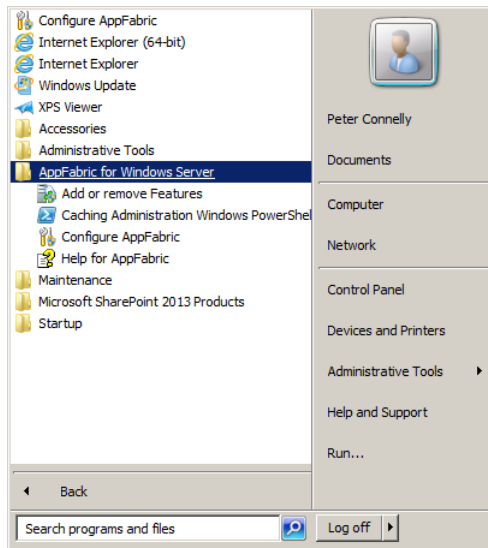
FIGURE 1-7 Do not use the AppFabric For Windows Server administration tools.

The Distributed Cache service can become unstable or enter an unrecoverable state when one or more servers experience an unplanned outage such as a power failure. Even a planned shutdown of a SharePoint server can affect the Distributed Cache service. It is therefore important to manage the service in SharePoint 2013, as described in the article at *technet.microsoft.com/en-us/library/ jj219613(v=office.15)*.

There are seven SharePoint 2013 Windows PowerShell cmdlets with which you can manage the Distributed Cache service:

- *Add-SPDistributedCacheServiceInstance*

- *Clear-SPDistributedCacheItem*

- *Get-SPDistributedCacheCllientSetting*

- *Remove-SPDistributedCacheServiceInstance*

- *Set-SPDistributedCacheClientSetting*

- *Stop-SPDistributedCacheServiceInstance*

- *Update-SPDistributedCacheSize*

Minimal Download Strategy

SharePoint 2013 is based on a very rich web interface that contains lots of "moving parts" and lots of customizable areas. In SharePoint 2010, many times when a user interacted with a page, the entire page was downloaded to the client computer, even when only a portion of the page changed. SharePoint 2013 includes a new navigation framework that improves page load performance by only downloading those portions of the page that have changed. This is known as the Minimal Download Strategy (MDS).

MDS is implemented as a new SharePoint feature, scoped at the web level. It works with the AjaxDelta control which is added to the head section of master pages. By default, the MDS feature is activated on the Team, Community, Wiki, Projects, App, and Blog site templates. When activated, it sets the web object *EnableMinimalDownload* property. It is not enabled on publishing sites.

By activating or deactivating the MDS feature or by using Windows PowerShell, you can switch MDS on or off. There are two other ways to disable MDS:

- If you place the *PageRenderMode* SharePoint control on a master page or content page and set the *RenderModeType* property to *Standard*, this will prevent the use of MDS. If the *PageRenderMode* control is absent from the page or the property is set to *MinimalDownload*, MDS is enabled.

- To render Web Parts or controls with MDS, the *MdsCompliantAttribute* must be set. All controls defined in the *Microsoft.SharePoint.dll* assembly have that attribute set; however, none of the controls in the *Microsoft.SharePoint.Publishing.dll* assembly have that attribute set.

> **Note** If you have upgraded from SharePoint 2010, your custom controls or Web Parts will not automatically have the *MdsCompliantAttribute* attribute set and therefore will not be rendered by using MDS. If MDS is an important consideration on your website, you might need to have your developer edit, recompile, and reinstall the solution files for your custom controls and Web Parts.

When the site uses MDS and a page is requested, the address bar of the browser displays a URL similar to the following:

http://intranet.adventure-works.com/_layouts/15/start.aspx#/SitePages/Home.aspx.

The *start.aspx* file contains a JavaScript *asyncDeltaManager* object, which parses the URL and dynamically loads the page that follows the # sign. When subsequent requested pages contain the *querystring* parameter *AjaxDelta=1*, only the changed portions are downloaded to the client's browser.

The theme engine

In SharePoint 2010, themes reused the theme definition and format defined in the Office Open XML standard that was introduced with Microsoft Office PowerPoint 2007 to create new themes for slide decks. By using the browser on a SharePoint Server 2010 publishing site or on a site when the Publishing feature was enabled, you could create your own new themes or you could create a new *.thmx* file by using Word 2010, PowerPoint 2010, or Theme Builder. The *.thmx* file could then be uploaded into the Theme gallery.

In SharePoint 2013, the theme engine has changed so that themes are based on HTML5; therefore, users are not able to use the Office applications to create new themes. However, users can still change the look of a site or create new looks by using the browser (see Figure 1-8), changing the background image, colors, site layout (master page), and font. You can also preview and try out the theme before you apply it to your site.
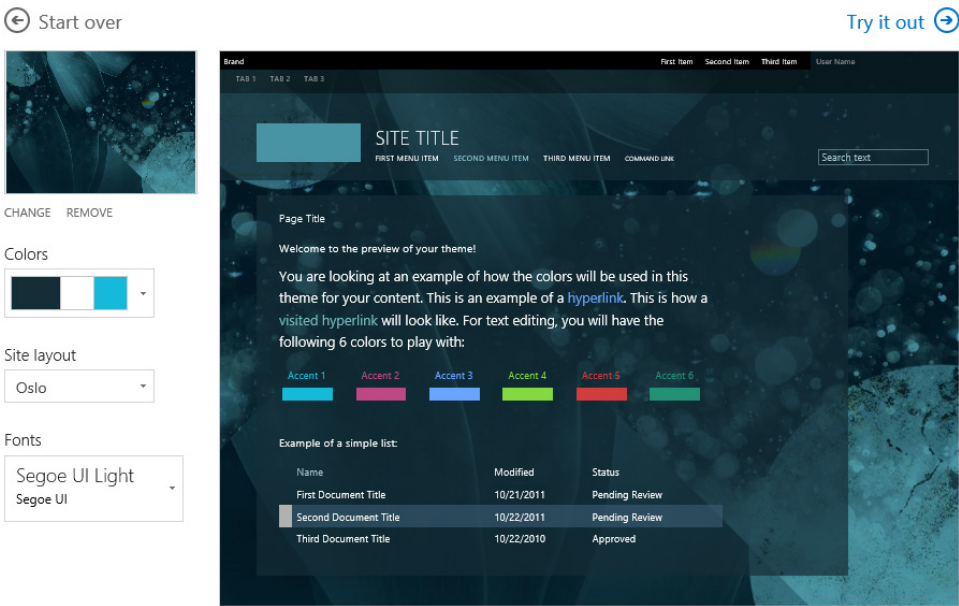
FIGURE 1-8 You can change the look of your site by using HTML 5 themes.

Note There is also a corresponding SharePoint 2013 Object Model API with which developers can create and apply a new theme programmatically.

In SharePoint 2013, 18 different looks are available. You can use any of these as a basis for a new look. The different looks displayed on the Change The Look page, are a combination of four components, background image, master page, color palette, and a font scheme. The color palette and font schemes are XML files that are stored at the top-level site of a site collection in the "15" folder, in a document library named Theme Gallery. This library has a URL of _catalogs/theme, to which you can navigate from the site settings page under Web Designer Galleries (see Figure 1-9). The two file types have the following extensions:

- *.spcolor* for color palettes files

- *.spfont* for font scheme files

Intranet

Theme Gallery ▸ 15 ⓘ

Search This Site...

⊕ new document

Themes ···

✓		Name		Edit	Modified
	🗋	fontscheme001	···	🗒	July 22
	🗋	fontscheme002	···	🗒	July 22
	🗋	fontscheme003	···	🗒	July 22
	🗋	Palette001	···	🗒	July 22
	🗋	Palette002	···	🗒	July 22

FIGURE 1-9 The Theme Gallery 15 stores the theme files.

The four components are associated together to form a Composed Look. The information where to find the four components for each Composed Look is saved at the site level in a list named Composed Look, with a URL of _catalogs/design, as shown in Figure 1-10.

When a Composed Look is applied to a site, several images and CSS style sheets based on the .spcolor file are created. Then, a new folder is created in the Themes Gallery and the images and CSS style sheets are placed inside it, similar to how a theme was applied in SharePoint 2010.
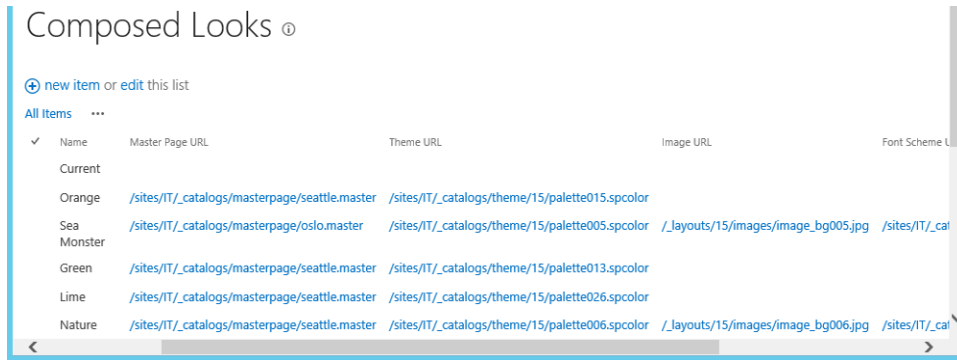
FIGURE 1-10 You change the look of your site by choosing a Composed Look.

Support for mobile devices

SharePoint 2013 provides improvements in rendering content and location-aware lists that can aid in mobile application development. It also supports applications on mobile devices that should receive notifications from a SharePoint site.

Lists are made to be location-aware by using a new geolocation field. This field cannot be added when you create a list by using the browser; it must be inserted programmatically, and a new *.msi* package, *SQLSysClrTypes.msi*, must be installed on every SharePoint server that responds to web requests. This *.msi* package is part of the Microsoft SQL Server 2008 R2 SP1 Feature Pack for SQL Server 2008 or Microsoft SQL Server 2012 Feature Pack for SQL Server 2012 SP1.

> **Note** Although the geolocation field might be useful on mobile devices, it displays maps on other devices such as laptops. Also, you can create a geolocation column by using the browser, a script editor Web Part, and client-side code.

The improved mobile browser experience consists of the following three views:

- **Contemporary view**   An HTML5-optimized mobile browser experience, available to Mobile Internet Explorer 9.0 or later versions, for Windows Phone 7.5, Safari versions 4.0 or later versions, for iPhone 4.0, and the Android browser for Android 4.0 or later versions.

- **Classic view**   Identical to the mobile browser experience of SharePoint Server 2010. This uses HTML or similar markup languages such as CHTML or WML to provide backward compatibility for mobile browsers that cannot render the contemporary view.

- **Full-screen user interface**   A full-desktop view of a SharePoint site on a smartphone device.

The contemporary view is available on sites for which the new Automatic Mobile Browser Redirection site-level feature is activated. This feature checks if the mobile browser can handle HTML5 before sending the contemporary view to the mobile device; otherwise, the classic view is downloaded. By default, this feature is activated on the following site templates: Team Site, Blank Site, Document Workspace, Document Center, and Project Site.

On publishing sites, SharePoint 2013 includes device channels with which you can use different designs that target different devices, based on their user agent string.

The new stand-alone Office Web Apps Server product still provides mobile browser-based viewers: Word Mobile Viewer, Excel Mobile Viewer, and PowerPoint Mobile Viewer. These are optimized to render documents on phones.

> **More Info** To read more about planning for mobile devices in SharePoint 2013, go to *technet.microsoft.com/en-us/library/gg610510(v=office.15).aspx*. For information on how to administer mobile device in SharePoint 2013, go to *technet.microsoft.com/en-us/library/ff393820(v=office.15).aspx*.

Supported web browsers

SharePoint 2013 supports several commonly used web browsers. Internet Explorer 8, Internet Explorer 9, and Internet Explorer 10 (when in desktop mode) have full support for all collaboration actions in SharePoint 2013. Versions of Google Chrome, Apple Safari, and Mozilla Firefox (and 64-bit versions of Internet Explorer) offer limited support.

Internet Explorer 6 and Internet Explorer 7 are explicitly not supported; however, a designer of SharePoint 2013 Web Content Management (WCM) sites (also known as *publishing sites*) and the HTML markup they use to layout pages could create sites with which readers can view content by using any browser. Content authors on a publishing site would still need to use one of the supported browsers.

> **More Info** To read more about browser support, see the TechNet article "Plan browser support in SharePoint 2013" at *technet.microsoft.com/en-us/library/cc263526(v=office.15).aspx* and "Supported mobile device browsers in SharePoint 2013" at *technet.microsoft.com/en-us/library/fp161353.aspx*.

Service application improvements

From a service application perspective, the SharePoint 2013 architecture remains the same as that for SharePoint 2010. There are, however, new service applications available, service applications that have changed, and some that have been deprecated. This section details them all, but there are enhancements to the Business Intelligence (BI) services, such as Excel Services, PerformancePoint, and Visio Services, which are detailed in Chapters 5 and 6.

New service applications

SharePoint 2013 contains three new service applications:

- Machine Translation

- Work Management

- App Management

Of these three new service applications, only the Machine Translation service application can be used as a cross-farm service application; that is, it can be configured to be accessible from multiple SharePoint farms within your organization. The other two can only be used within a single farm.

> **Note** No other service applications have been added or removed from the list of service applications that are shared across SharePoint farms. If you are using a service application farm in your SharePoint 2010 installation, you can upgrade this farm first before upgrading the consuming SharePoint farms.

The Machine Translation service application

This connects to the Bing cloud-based translation service by which users can employ machine translation on sites, files pages, and term sets located in the MMS. This cloud-based service doesn't understand context and keeps words in same order. This service can run in partitioned mode if you need to use it in a multitenant environment.

On the management page for the service application (see Figure 1-11), you can configure which file types to translate, the maximum file size (binary and text files), the maximum character count for Word documents, as well as other options, including specifying a web proxy server, number of translation processes created on each server, frequency of the throughput, maximum translation attempts, maximum synchronous translation requests, translation quota, and whether extra security checks are performed for Office 97-2003 documents. The Machine Translation service application processes translation requests asynchronously, synchronously (for instant translation), and via ad hoc translation. This service can be used as the primary translation engine not only for files, pages, and streams of bytes produced by programs, but it can also be used for variation's content.

FIGURE 1-11 You can configure the Machine Translation service application by using its management page.

There are a number of timer jobs for this service:

- Language Support, which runs weekly and updates the languages available to the Machine Translation service application.

- Machine Translation service application timer job that by default runs every 15 minutes and initiates the translation of documents that have been submitted to the Machine Translation service application. The frequency of this timer job is configured on the Service Application Management page.

- Translation Export Job Definition for each web application associated with a Machine Translation service application that exports pages and lists content to XLIFF for human translation or machine translation via the Machine Translation service application.

- Translation Import Job Definition for each web application associated with a Machine Translation service application that imports translated page and list content from XLIFF to the correct location in a site collection.

- Remove Job History removes the completed job history. The frequency of this timer job is configured on the Service Application Management page.

  Full-trust solutions can be created to perform immediate or batch translations by using the REST API or Client-Side Object Model (CSOM) as well as server APIs. You can find information about writing custom solutions by using the Machine Translation service application at *msdn.microsoft.com/en-us/library/jj163145(v=office.15).aspx*.

The Work Management service application

The Work Management service application (WMSA) provides functionality to aggregate tasks. With it, users can view and track their to-do's and tasks from one central location: their My Site. Tasks are aggregated from a number of Microsoft products, including Microsoft Exchange 2013, Microsoft Project Server 2013, and SharePoint 2013.

The tasks are cached in the user's My Site with a two-way synchronization so that they can either be updated in the user's My Site or updated in the product where they were originated. Information concerning tasks held in Exchange 2013 is obtained by using the Work Management Synchronize with Exchange timer job, which runs every 5 minutes.

Exchange 2013 provides new and improved Exchange Web Services (EWS) and web service interfaces that can be used to access and manage information stored in Exchange. If you plan to use the Exchange 2013 integration capabilities with SharePoint, you need to install the Exchange Web Services Managed API, which can be downloaded from Microsoft's download site at *www.microsoft.com/en-us/download/details.aspx?id=35371*.

The WMSA is based on *Provider model* so that other systems can be integrated in the future.

The Central Administration website does not provide any management pages for this service application. Any integration with this service must be done programmatically.

App Management Service

The App Management Service is used to access SharePoint Apps, which is a new application architecture for SharePoint 2013 (this is discussed later in this chapter).

Deprecated/changed service applications

This section discusses service applications that have changed or been deprecated.

The search service application

The search service application (SSA) is another area in which Microsoft has made major investments. SSA has been completely re-engineered from the ground up, built on functionality from SharePoint Server 2010 enterprise search and FAST Search for SharePoint 2010. Not only is FAST Search no longer a stand-alone product, but indeed, it is a dead one.

SharePoint 2013 enterprise search provides a powerful, scalable, and extendable service. It incorporates better support for in-context refinements and provides in-line previews. For example, you can find information about a document on the search results page without opening the document.

SharePoint 2013 search uses a single object model for all SharePoint 2013 products. This means that SharePoint Foundation 2013 and the Standard or Enterprise editions of SharePoint Server 2013 all have the same underlying search object model.

In SharePoint Server 2013 you can have multiple search schemas. The search schema contains the crawled properties, managed properties and their settings, and the mappings between the crawled and managed properties. In addition to the default search schema, site collection administrators and tenant administrators can also create search schemas specific to their site collection or tenant. Only unused managed properties that do not have crawled properties mapped to them can be reused.

SharePoint Search 2013 is not only used to help you locate content or people, it is also used in other components of SharePoint 2013, including eDiscovery, navigation, topic pages, and Internet-facing sites. Therefore, it should be one of the first service applications you should create. For example, you will not be able to create a successful Managed Metadata service application if a search service application is not installed.

> **More Info** You can read more about the improvements within enterprise search in Chapter 2, "Introducing the new search architecture."

MMS

MMS has become more robust. Tags can now have properties, and you can use these properties for site-based navigation. You can control how users create tags, and you can now "pin" terms to prevent accidental duplication of tags. MMS also includes improvements and additional capabilities in a multi-lingual environment, without the need to install language packs.

> **More Info** You can read more about using MMS terms for navigation in Chapter 3.

Office Web Apps

Office Web Apps is no longer a service application. It is now packaged as a separate product and installed on its own set of servers (farm). This way, you can scale, manage, and maintain Office Web Apps as a separate entity without affecting the installation of the SharePoint farm. It is also licensed separate from SharePoint licenses. Office Web Apps is used by Exchange 2013 and Lync 2013 as well as by SharePoint 2013, URL accessible file servers, and possibly in the future, third-party document stores, such as Oracle Universal Content Management (UCM) and EMC's Enterprise Content Management (ECM) Documentum products.

This means that even though you might not have SharePoint installed within your organization, you might want to install Office Web Apps so that you can use it with Exchange and Microsoft Lync to render documents. However, there are license implications in this scenario.

There is no licensing required for viewing documents in SharePoint 2013. But, if you want to create or modify documents by using Office Web Apps in SharePoint 2013, licenses will need to be purchased. You can read more about licensing Office Web Apps for editing Office files at *technet. microsoft.com/en-us/library/ff431682.aspx#license*.

Some improvements you will see if you use Office Web Apps in SharePoint 2013 include the following:

- You can view documents in full-screen mode or by using Web Parts. However, Microsoft Visio is not part of Office Web Apps, so you should use Visio Services to display Visio files.

- Not-so friendly URLs are removed.

- Multi-authoring is now available with PowerPoint and Word in addition to OneNote and Excel.

- When a user hovers over the item on the search results page in SharePoint, Office Web Apps displays a preview of the item's content.

The separation of Office Web Apps from SharePoint 2013 also frees the Office Web Application team to enhance the product independent of SharePoint.

Office Web Apps needs to be installed on either Windows Server 2008 R2 or Server 2012. It does not need access to an SQL Server, because it does not create any databases. Office Web Apps uses a shared XML configuration file called *Farm-Settings.xml* for the farm, and then each server in the farm has its own *Machine_Name.xml* file. You cannot install Microsoft Exchange, SharePoint, Microsoft Lync, SQL, or any version of the desktop Office programs on the same servers on which Office Web Apps is installed. If other products that are installed on the same servers as Office Web Apps use web services, they cannot use port 80, 443, and 809.

> **Warning** After Office Web Apps is installed on a server, there are no visible signs on the Start menu that it is installed. Therefore, other administrators in your organization might incorrectly identify the server as a candidate for a clean install that they can use. To complete the installation of Office Web Apps, you use Windows PowerShell.

If you are using Office Web Apps with SharePoint 2013, after both farms are installed, you will need to bind the two together by using the Windows PowerShell *New-SPWOPIBinding* cmdlet on one of the servers in your SharePoint farm.

> **More Info** You can read more about Office Web Apps at *technet.microsoft.com/en-us/library/jj219456(v=office.15).aspx*, including how to use Office Web Apps with SharePoint 2013.

Web analytics

This is no longer a separate service application; it is now part of SharePoint's search engine. Search is a lot smarter in SharePoint 2013 and can be used to analyze individual actions by the end users as well as click through rates of sessions. This information is then used to provide relevance and suggestion information for users. SharePoint 2010 monitored who visited what and where they went. Now, search provides social analytics that also provides information on what users are doing. Microsoft has provided an extensible API.

You can find the analytic information for a site in an Excel file named *usage.xlsx*. To access this file, on the site settings page, in the Site Administration section, click Popularity Trends. The output in the file should look similar to that in Figure 1-12.
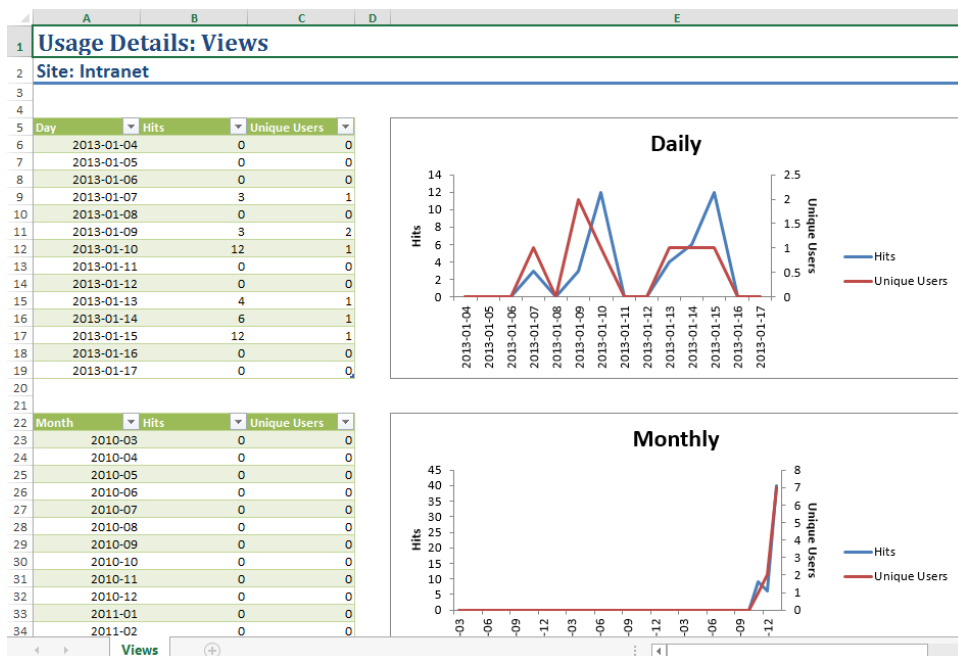
FIGURE 1-12 Site usage details as displayed in the *usage.xlsx* file.

To view search usage reports (see Figure 1-13), go to the Search Administration page, and then in the right navigation pane, in the Diagnostics section, click Usage Reports.

FIGURE 1-13 The Search Service Application conducts the analysis and reporting of analytical data. It is also used to report on search metrics.

You cannot upgrade the Web Analytics Service of SharePoint Server 2010 to the Analytics Processing Component in SharePoint 2013. When you upgrade to SharePoint 2013, you cannot attach and upgrade the SharePoint 2010 Web Analytics databases. You should turn off Web Analytics in the SharePoint Server 2010 environment before you copy the content databases that you want to upgrade to SharePoint 2013. Also, SharePoint 2013 does not support the Web Analytics Web Part. When a site is upgraded to SharePoint 2013, any pages that include the Web Analytics Web Part will render a message that informs the user that the Web Part is no longer supported.

More Info You can read more about search in Chapter 2.

Microsoft SharePoint Foundation Subscription Settings Service

This service provides multitenant functionality, and as you would expect, it gets better in SharePoint 2013. It still tracks subscription IDs and settings for service applications that are deployed in partitioned mode. All service apps in SharePoint 2013 can be partitioned. However, it still can only be deployed by using Windows PowerShell.

Most on-premises customers will probably not need to implement a multitenant environment; however, if you plan to use SharePoint Apps or host-named site collections, you will need to create this service application. SharePoint Apps are deployed in their own website in a special isolated domain such as AWApps.com or apps.adventure-works.com. The Microsoft SharePoint Foundation Subscription Setting Service is used to establish the domain/subdomain that hosts the websites for the SharePoint Apps. Similarly, the subscription service is used to establish the subdomain that host-named site collections use.

The User Profile service application

Most IT professionals had difficulties with the User Profile service application (UPSA) in SharePoint Server 2010, and problems after installing cumulative updates are infamous. Improvements include the following:

- Performance has been optimized. For example, indexes have been added to specific user properties to reduce full-table scans and batch import of data if you use the Business Connectivity Services.

- Compatibility with Common Directory Service configurations, including Forefront Identity Manager (FIM) and generic Lightweight Directory Access Protocol (LDAP) providers.

- Ability to monitor profile synchronization performance and stability.

- The User Profile Replication Engine (UPRE) was a separate download in SharePoint 2010. This is now part of SharePoint Server 2013. Using UPRE, you can replicate user profile information and some social information between multiple farms.

- Additional synchronization options (see Figure 1-14). You can use unidirectional Active Directory (AD) synchronization import as in SharePoint 2010, which still make use of FIM, plus SharePoint 2013 now includes the one-way AD Import, which was the only method available in Microsoft Office SharePoint Server 2007. In SharePoint 2013, you do not need AD replication permissions, even if you use FIM. You can filter on Organizational Units (OUs), users, and AD security groups by using LDAP filters for full or incremental imports, and you can switch between AD Direct and FIM.

Note Switching from AD Direct to FIM import is not a trivial task. The consequences of switching can be dramatic. At a minimum, all of the synchronization connections and mappings need to be recreated. For more information on UPSA, read Chapter 4.

Configure Synchronization Settings

Use this page to manage the settings for profile synchronization of users and groups.

Synchronization Entities

Based on your selection, both users and groups, or only users will be synchronized across all synchronization connections.

Note: If you are upgrading from a previous version of SharePoint, it is recommended that you first do a Users only synchronization run, followed by a Users and Groups synchronization.

⦿ Users and Groups
○ Users Only

Synchronize BCS Connections

Select this option if you would like BCS (Business Connectivity Service) data to be imported. If you clear this selection, your AD and/or LDAP connections will be included in the profile synchronization run (full or incremental) but your BDC connections, if any, will be ignored. You can change this setting later to include the BDC data import.

☐ Include existing BCS connections for synchronization?

Synchronization Options

To use the full-featured SharePoint Profile Synchronization option, select 'Use SharePoint Profile Synchronization'.

To use the light-weight Active Directory Import option (with some limitations - see documentation), select 'Use SharePoint Active Directory Import'.

To use an external identity manager for Profile Synchronization, select 'Enable External Identity Manager'.

Note: Enabling external identity manager will disable all Profile Synchronization options and status display in SharePoint.

⦿ Use SharePoint Profile Synchronization
○ Use SharePoint Active Directory Import
○ Enable External Identity Manager

FIGURE 1-14 The profile synchronization settings for users and groups.

Business Connectivity Service

Improvements to the Business Connectivity Service (BCS) in SharePoint 2013 include the following:

- An additional connection protocol, Open Data (OData), has been included. This is an industry-standard web protocol that is used to query and update data. OData applies web technologies such as HTTP, Atom Publishing Protocol (AtomPub), and JavaScript Object Notation (JSON) to provide access to information from a variety of applications, services, and stores. For years, SharePoint has been an OData provider, which means a SharePoint list can be consumed by using OData. In SharePoint 2013, you can now connect to an external data source by using OData. By using OAuth 2.0 with OData connections, you can also achieve more fine-grained permissions.

- Developers can create event receivers in SharePoint 2013 that are triggered when data in the external system has changed, as long as the external system provides a subscription and notifications interface. The application or user needs to subscribe to the external system for this to work.

- Support for SharePoint Apps has been added. Business Data Connectivity (BDC) information can be included within a SharePoint App. The BDC runtime then creates an External Content Type (ECT) that is scoped at the SharePoint App level. This limits use of the ECT to the Share-Point App. In SharePoint 2010, ECTs could only be scoped at the service-application level.

- SharePoint 2013 provides an event listener. This makes it possible for SharePoint users and custom code to receive notifications of events that occur in the external system. For example, developers can write custom code for external lists that trigger SharePoint events when data is changed. SharePoint users could then subscribe to alerts on external lists that are based on ECTs that make use of that custom code.

- External list performance improvements and the ability to export an external list to an Excel spreadsheet.

More Info You can read more about BCS in Chapter 5.

Access

There are now two service applications, as described here:

- **Access Services 2010** This mimics the Access service application on SharePoint 2010, by which the tables in your Microsoft Access database are stored as SharePoint lists on the site that was built from the Access web database site definition.

- **Access Services has been completely rebuilt** When Access 2013 databases are published to SharePoint 2013, an Access web app site is created and your data is now stored in a full-fledged SQL Server database, which is automatically generated in the SQL Server 2012 installation that was selected by a SharePoint administrator. The databases created will have a name, such as, db_<*guid*>, where <*guid*> is an automatically generated number. The tables, queries, macros, and forms are all stored in this database. Whenever you visit the Access web app site, enter data, or modify the design, you'll be interacting with this database behind the scenes. Therefore, SharePoint 2013 Access web app will not have the same limitations that SharePoint 2010 Access web databases had in terms of numbers of fields and sizes of tables.

  Advanced users who are familiar with SQL Server will be able to directly connect to this database for advanced reporting and analysis with familiar tools such as Excel, Microsoft Power View, and SAP Crystal Reports. Access web app site now has far more capabilities for rich forms and reports than were provided in SharePoint 2010.

  This does have implications for your database administrator as well as the operational-level agreements you might have with your business with regard to the maintenance of these Access 2013 web app databases.

More Info You can read more about Access in Chapter 5.

PowerPoint Automation Service

Although it's technically not a service application, but rather a SharePoint service because you only have to start the service by using the Services On Server page in the Central Administration web site, SharePoint 2013 includes the new PowerPoint Automation Service. Similar to the current Word Automation Service, it takes presentations and converts them into other formats such as HTML and PDF.

Web application and site collection improvements

Two important improvements in SharePoint 2013 include a change of Microsoft's recommendation that web applications should use claims-based authentication by default, and the use of host-named site collections.

Authentication

As with SharePoint 2010, with SharePoint 2013 you can create web applications to use either classic or claims-based authentication. With either type of web application, claims authentication is used for authentication flow within the farm. The authentication type of the web application only affects the authentication flow into and out of the SharePoint farm.

SharePoint 2013 has extended claims-based authentication via OAuth 2.0 and a dedicated server-to-server STS authentication, which together make it possible for your organization to use new scenarios and functionality for Exchange Server 2013, Lync Server 2013, apps in the SharePoint Store or App Catalog, and other services that are compliant with the server-to-server authentication protocol.

SharePoint 2013 supports user authentication based on the following claims-based authentication methods:

- Windows claims

- SAML-based claims

- Forms-based authentication claims

In SharePoint 2010 the recommendation was to create web applications by using classic-mode authentication because there were components that were not claims-aware, such as using the people picker and SQL Server 2008 R2 Reporting Services. Now, with the new, improved claims-based authentication in SharePoint 2013 being the default, Microsoft's recommendation is to use this authentication scheme for your web applications.

When using the Central Administration website, only claims-based web applications can be created. Classic-based authentication is now deprecated, and to create classic-mode web applications, you must use Windows PowerShell. If you are upgrading from SharePoint 2010 to SharePoint 2013, you can convert your classic-mode web applications to claims-based before upgrading.

SharePoint 2013 has much more logging to help you troubleshoot authentication issues. Examples of enhanced logging support include the following:

- Separate categorized claims-related logs for each authentication mode

- Information about adding and removing FedAuth cookies from the Distributed Cache Service

- Information about the reason why a FedAuth cookie could not be used, such as a cookie expiration or a failure to decrypt

- Information about where authentication requests are redirected

- Information about the failures of user migration in a specific site collection

Host-named site collections

Microsoft recommends that you create host-named site collections (HNSC) and not path-based site collection addressing. HNSC is a mechanism for consolidating web applications into individual site collections, yet letting them retain their existing URLs.

In SharePoint 2010, web applications contained one or more site collections and the common practice was to create them under wildcard-managed paths such as *http://intranet.adventure-works.com/sites/hr or http://intranet.adventure-works.com/sites/it*.

Using HNSC, each site collection can have its own top-level URL, so the equivalent site collection could be *http://hr.adventure-works.com* or *http://it.adventure-works.com*. Both of these site collections are created in the same web application and could be stored in the same content database; however, by looking at the URLs of these two site collections, users would not be aware of this. Using this technique you can reduce the number of web applications that you need in your SharePoint farm.

The web application that hosts the HNSC must have a default site collection at its root but does not need a template assigned to it, because it will not be used for anything. Also, for each HNSC you must update the DNS to point to the IP address for the web application that is hosting them or use a wildcard DNS entry.

Using HNSC suits a multitenant hosting environment such as Office 365 and was available in SharePoint 2010. However, in SharePoint 2013 Microsoft has overcome some key limitations and improved the scalability of HNSC, not just for cloud-based solutions, but it also scales much better for on-premises deployments. Microsoft is now recommending that HNSC should be the default for your URL site collection naming standards. However, there are still some limitations to this approach:

- HNSC cannot be extended or mapped. You need to set a different set of policies as per the URL.

- HNSC should not be hosted in multiple web applications. Although this is technically possible, it is complicated to achieve and manage. You should consider perhaps using HNSC in one web application, even though you can create HNSC and path-based site collections on the same web application that you use path-based site collections in other web applications. And, of course, it is very unlikely that you would use HNSC for personal sites.

HNSC cannot be created within Central Administration; you must use Windows PowerShell and you need to configure the DNS to send all requests for *http://*.adventure-works.com* to a web application. This web application must be extended with SharePoint and should not be bound to any specific host headers so that it handles all requests. After you have created an HNSC by using Windows Power-Shell, the HNSC appears on the View All Site Collection page for a specific web application within the Central Administration website, as shown in Figure 1-15.

URL Search		Web Application: http://intranet.adventure-works.com/ ▾
URL		
/	URL	http://intranet.adventure-works.com
/sites/IntranetAppsCat	Title	Intranet
/sites/SearchCentre	Description	Home
/sites/SP2010_3	Primary administrator:	Peter Connelly
/sites/SP2010_3-eval	E-mail address:	peter@adventure-works.com
hr.adventure-works.com	Database Name	SPIntranet_AdvWorks_Content

OK   Cancel

FIGURE 1-15 Use the Central Administration website to display both path-based and host-named site collections.

> **More Info** You can find more information about HNSCs on TechNet at *technet.microsoft. com/en-us/library/cc424952.aspx*.

Self-Service Site Collection Creation

As with SharePoint 2010, you can enable Self-Service Site Collection Creation (SSC) in SharePoint 2013; however, you have a number of new options, as shown in Figure 1-16, with which you can do the following:

- Allow users to create site collections by using the site collection signup page, *scsignup.aspx*.

- Provide users with a shortcut to create new Team sites at a defined location. When you select to prompt users to create either a Team site or a site collection, you can configure Site Classification Settings to be hidden from users, to be an optional choice, or to be a required choice.

> **Note** SSC is only applicable to path-based site collections, not HNSCs.

FIGURE 1-16 When enabling SSC, there are several options available.

If you use the Farm Creation Wizard, SSC is enabled by default.

Site collection and site administration

Site collection administrators can manage a number of new features that are introduced with Share-Point 2013. When you navigate to the site settings page at the top of a site collection, you see a number of new links that were not there in SharePoint 2010, such as the following:

- SharePoint App permissions at a site or site-collection level

- Term store management

- Popularity trends

- A large number of search-related links, including Search Result Sources, Search Result Types, Search Query Rules, Search Schema, Search Settings, Search Configuration Input, Search Configuration Export, Search Engine Optimization, and Popularity And Search Reports. Also, the FAST-related links have been removed.

- HTML Field Security

For organizations that upgrade from SharePoint 2010 to SharePoint 2013, they will need to decide which site collection administrators will want to use this new functionality. It might also mean that for some organizations the configuration of such functions will be kept internal to the IT department. Such organization will need to introduce new processes so that businesses can request the new functionality enabled by these links at a site-collection or site basis.

The Microsoft documentation states that in SharePoint 2013 a number of site templates are no longer available. This includes the Document Workspace, Personalization, Group Work, and all five of the Meeting Workspace site templates. Existing sites that were created by using any of these site templates in SharePoint 2010 will continue to operate in SharePoint 2013. Microsoft has stated that these site templates will be removed completely from the next major release of SharePoint, and sites that were created by using these site templates will not be supported. However in SharePoint 2013, you can create sites using these templates.

In SharePoint 2010, you could only create the PowerPoint Broadcast site at a site-collection level by using the Central Administration website or Windows PowerShell. It required Office Web Apps and the PowerPoint service application. Office Web Apps is now a separate server product that can serve multiple SharePoint farms, and therefore, in SharePoint 2013, sites created by using the PowerPoint Broadcast site definition are not supported. Any content in such sites must be moved and the sites deleted prior to upgrading any content databases that contain them.

The Visio Process Repository site template is available in SharePoint 2013; however, Microsoft has stated that it will be removed in the next major release of SharePoint.

SharePoint development changes

The application architecture is another area in which Microsoft has made a major investment. Everything within SharePoint is now called an app—custom code is an app, a document library is an app, your announcements list is an app, and access databases that you host within SharePoint are apps.

Microsoft has introduced a new API that runs in parallel with existing APIs. Any code that you created in SharePoint 2010 will continue to run. However, your developers now have the option of recomposing them as apps that can run on a different server or in the cloud, or can run on your SharePoint 2013 servers.

Using this new app model, you can now keep your SharePoint 2013 clean of custom code. With SharePoint 2010, to extend the out-of-the-box experience, you had to add custom code, and that custom code had to run on your SharePoint 2010 server. This added risk to your SharePoint installation. However, you cannot use all the same techniques when you try to extend SharePoint 2010 when it lives in the cloud.

The trend across the Internet with regard to services such as Facebook or LinkedIn is that when people add apps to those services, they are not adding code to the Facebook or LinkedIn servers. Apps are registered and published on those services. The app is run on other servers in the cloud, but they can integrate deeply with Facebook or LinkedIn. You can also have apps that are platform

specific, so you can have iOS, Android, or web apps. On each of these platforms, the app is visually integrating with Facebook or LinkedIn services by running client-side code. This is code that is running on your tablet, mobile phone, or within your browser.

SharePoint 2013 application architecture provides the two approaches you will be familiar with when using SharePoint 2010—farm solutions and sandboxed solutions—plus it has an extended client-object model so that custom code can be created by using a similar apps model that is used by Facebook and LinkedIn. You can publish your SharePoint 2013 or Office 2013 apps uniformly whether your SharePoint installation is on-premises or in the cloud. SharePoint 2013 has support for the online SharePoint store, where you can use publically available apps which you might have to purchase or might be free. Alternatively, you can have an internal market place or you could use both the public store and an internal market place.

You will still need to create farm solutions in SharePoint 2013 for the same reasons you had to create them in SharePoint 2010; for example, to complete actions across site collection boundaries, to manage web applications, or the SharePoint farm. If your solution doesn't need to be a farm solution, then the question becomes should it be a sandboxed solution and SharePoint App? Microsoft's answer to that question is that you will not need sandboxed solutions. Sandboxed solutions will still work in SharePoint 2013; however, there are no improvements that Microsoft has made to them, other than they are tested for backward compatibility. But, if your organization is developing a new solution, your choices will be between farm solutions and SharePoint Apps.

Note SharePoint Apps do not work on web applications that use SAML. They do not support multiple zone; that is, alternative access mappings (AAM).

SharePoint Apps management

Using or developing SharePoint Apps when SharePoint is hosted in the cloud is slightly easier than when using or creating them for an on-premises installation of SharePoint 2013. The infrastructure to support apps is built for you. Also Microsoft has provided "Napa" Office 365 development tools with which developers can build apps for Office and/or SharePoint by using a browser window, with no need to install any other tool such as Microsoft Visual Studio. Before users can add a SharePoint App to their site and use it, SharePoint farm administration needs to complete a number of tasks to support SharePoint Apps in an on-premises installation of SharePoint 2013.

More Info You can find more information about creating apps for Office and SharePoint by using "Napa" Office 365 development tools at *msdn.microsoft.com/en-us/library/jj220038(v=office.15).aspx*.

Using a SharePoint App

A site owner uses the Site Contents page or the Your Apps page to add a SharePoint App to a site. To navigate to the Your Apps page, click the Settings icon, and then in the menu that opens, click Add An App, as shown in Figure 1-17.
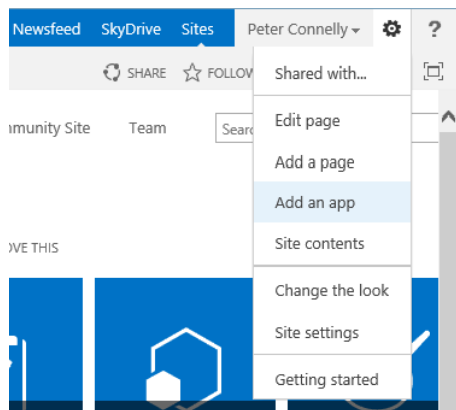
FIGURE 1-17 Use the Settings icon to display the Your Apps page.

SharePoint Apps are made available from one of three locations:

- **Apps You Can Add**   On the Your Apps page, in the Quick Launch under Your Apps, click Apps You Can Add to be presented with a list of apps already available for your site. The list will contain the default apps, such as standard lists and libraries, as well as any apps that you might have added from the Microsoft's Online Marketplace.

- **The App Catalog**   On the Your Apps page, in the Quick Launch, under Your Apps, click From Your Organization.

- **The Microsoft Online Marketplace**   On the Your Apps page, in the Quick Launch, click SharePoint Store. You are then redirected to Microsoft's Online Marketplace, as illustrated in Figure 1-18. Apps that require a prerequisite that is not installed on a web application or tenancy appear dimmed and are unavailable. Some SharePoint Apps are free, whereas others you will need to purchase. When you purchase a SharePoint App, you must accept the license and you will need to agree to the permissions that the SharePoint App must have in order to execute, such as read access to lists or full control access to the site collection.

When you visit the SharePoint Store, you might notice that some of the apps are not available (they are displayed grayed out). These apps might require features that are not activated on your site; for example, when the app requires Internet-facing endpoints. You can activate Internet-facing endpoints by navigating to the Manage Web Applications page on the SharePoint Central Administration website. You can activate this feature on the Mange Web Application Features page, which you can navigate to by selecting the web application that you want to configure, and then on the Web Applications ribbon tab, in the Manage group, click Manage Features.
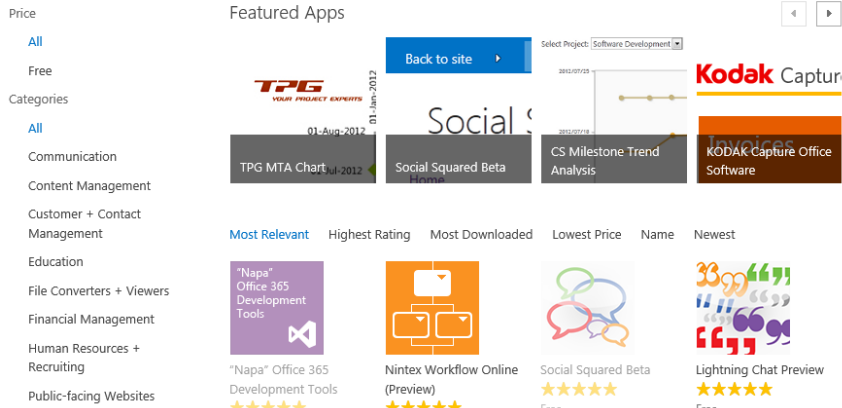
FIGURE 1-18 You can add SharePoint Apps to your site from the Microsoft Online Marketplace.

When you add a SharePoint App, a SharePoint App permission request is displayed, which you need to accept to use the SharePoint App. SharePoint Apps that have been added to a site from the Microsoft Online Marketplace then appear on the Your Apps page, in the Apps You Can Add section, on any site in the SharePoint farm. They can also be seen on the Site Contents page.

Identify and configure a SharePoint Apps URL

The Apps URL is used to identify SharePoint Apps. SharePoint App URLs are created when you first add a SharePoint App to any site in a site collection. They are configured in the following format:

<App Prefix>-<guid>.<App Domain Name>/<SharePoint App name>

For example, *apps-87e90ada14c175.AWapps.com/myapp*, where the *<App Prefix>* is apps, the *<App Doman Name>* is AWapps and *<guid>*, is an automatically generated number. Therefore, if you add a SharePoint App named myapp to a site that is within many different site collections, you will have multiple SharePoint App URLs of the format:

- apps-*<guid>*.AWapps.com/myapp, if the SharePoint App was added to a site in the root site collection of a web application.

- apps-*<guid>*.AWapps.com/*sites/hr*/myapps, if the SharePoint App was added to a site in a managed-path site collection, where *sites* is the managed-path name and *hr* is the top-level site of the site collection.

Because the App Domain is defined once per SharePoint farm, and a SharePoint farm can host many web applications with a variety of fully-qualified domain names (FQDNs), it is recommended to use an App domain name that is not tied to one of the FQDNs that you use for you web applications. For example, if you have web applications with FQDNs of *intranet.adventure-works.com*, *teams.adventure-works.com*, and *portal.contoso.com*, do not use a child domain name of *apps.adventure-works.com*; instead, use an isolated FQDN, such as *AWapps.com*.

Configure the App Domain Name as a wildcard DNS A record, as demonstrated in Figure 1-19.
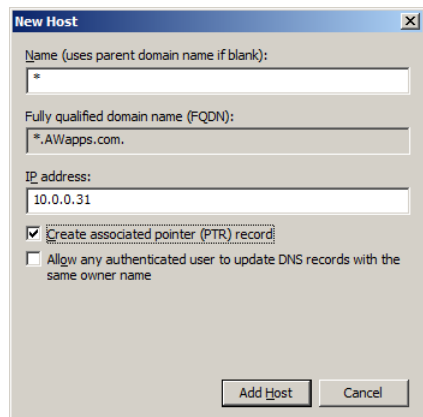
FIGURE 1-19 Configuring a wildcard DNS A host record for SharePoint Apps in the New Host dialog box.

The SharePoint App model uses OAuth access tokens, which describe who the current user and application are. To prevent any replay style of attack that would grant access to content by someone who was sniffing your network traffic, if you are using SharePoint Apps, you should be using Secure Sockets Layer (SSL). Using SSL prevents those scenarios from happening, and because you've seen the SharePoint Apps URLs are going to be different, you need a wildcard SSL certificate. You could use port 80 for a development or prototype environment.

To configure the App Prefix and App Domain name, use either Windows PowerShell or the Central Administration website.

The PowerShell commands will be similar to the following:

```
Set-SPAppSiteSubscriptionName –Name "app" –confirm:$false
Set-SPAppDomain "AWDomain.com"
```

Using the Central Administration website, you can display or configure the App Prefix and App Domain name by using the Configure App URLs page, as shown in Figure 1-20. In the Quick Launch, Click Apps, and then under App Management, click Configure App Urls.

FIGURE 1-20 Use the Configure App URLs page in the Central Administration website to set the App Domain and App prefix.

Start SharePoint Apps-related service instances

Using the Central Administration website, start the Microsoft SharePoint Foundation Subscription Settings Service and the App Management Service instances, if they're not already started (see Figure 1-21).

FIGURE 1-21 Start the Subscription Setting Service and App Management Service.

Create SharePoint Apps-related service applications

Use Windows PowerShell to create the Application Management Service Application and the Subscription Service Application, if one does not already exist, by using commands similar to the following:

```
$appPool= Get-SPServiceApplicationPool -Identity "SPServiceApps"
$app = New-SPSubscriptionSettingsServiceApplication -ApplicationPool $appPool '
   -Name SettingsServiceApp -DatabaseName SettingServiceDB
$proxy = New-SPSubscriptionSettingsServiceApplicationProxy -ServiceApplication $app
$appServ = New-SPAppManagementServiceApplication -ApplicationPool $appPool '
   -Name AppManServiceApp -DatabaseName AppManServiceDB
$appProxy = New-SPAppManagementServiceApplicationProxy -ServiceApplication $appServ
```

You can use the Central Administration website to check that these two service applications and their proxies were successfully created, as depicted in Figure 1-22.

Name	Type	Status
Application Discovery and Load Balancer Service Application	Application Discovery and Load Balancer Service Application	Started
Application Discovery and Load Balancer Service Application Proxy_986c437b-d0ad-4fd6-96d3-626447a4661b	Application Discovery and Load Balancer Service Application Proxy	Started
AppManServiceApp	App Management Service Application	Started
App Management Service Application Proxy_8e024cd3-f995-4f48-8a54-794af710f9a0	App Management Service Application Proxy	Started
BDC_SA	Business Data Connectivity Service Application	Started
BDC_SA	Business Data Connectivity Service Application Proxy	Started
MMS_SA	Managed Metadata Service	Started
MMS_SA	Managed Metadata Service Connection	Started
Search Administration Web Service for SearchServiceApplication	Search Administration Web Service Application	Started
SearchServiceApplication	Search Service Application	Started
SearchServiceApplication	Search Service Application Proxy	Started
SecureStoreService	Secure Store Service Application	Started
SecureStoreService	Secure Store Service Application Proxy	Started
Security Token Service Application	Security Token Service Application	Started
SettingsServiceApp	Microsoft SharePoint Foundation Subscription Settings Service Application	Started
Microsoft SharePoint Foundation Subscription Settings Service Application Proxy	Microsoft SharePoint Foundation Subscription Settings Service Application Proxy	Started
StateService	State Service	Started

FIGURE 1-22 Use the Central Administration website to verify that the Application Management Service Application and Subscription Service Application were successfully created.

The App Management service application uses its database to track the identity of each installed instance of the SharePoint Apps as well as the permissions.

Create a farm-wide default web application

Use Windows PowerShell to create the SharePoint farm-wide default web application that maps to the wildcard DNS entry. This web application will be used to redirect requests to the correct site collection, based on the SharePoint App URL. Do not create a site collection to this web application or bind it to any host name.

> **Note** You will need to either stop or delete the default IIS website that is created when the Windows Server Web Application role is added to the SharePoint server.

Creating and managing App Catalogs

In SharePoint 2013, each web application has its own App Catalog. Therefore, if you have multiple web applications, and you want the same apps to be available in all web applications, you need to create an App Catalog for each web application and upload all the apps into all the App Catalogs.

Use the Central Administration website to create an App Catalog for each web application for which you want to use SharePoint Apps. In the Quick Launch, click Apps, and then under App Management, click Manage App Catalog to display the Manage App Catalog page, as illustrated in Figure 1-23. To the right of Web Application, select the appropriate web application, select the Create A New App Catalog Site option, and then click OK.

FIGURE 1-23 Use the Manage App Catalog page to create an App Catalog for each web application.

When you click OK, a new site collection is created in the web application using the App Catalog Site (APPCATALOG#0) site template. The App Catalog site contains a list, named App Request, and two libraries, Apps For Office and Apps For SharePoint. It is in these two libraries that you upload your *.app* files.

After an App Catalog site is created, you can also use the View Site Settings on the Manage App Catalog page to navigate to the site settings page of an App Catalog site for a specific web application.

After an App Catalog for a web application is created, the next task is to configure whether users can get SharePoint apps from the SharePoint Store and/or apps for Office from the Office Store. To configure these settings on the SharePoint Central Administration website, navigate to the Apps page. In the SharePoint And Office Store section, click Configure Store Settings. If users cannot purchase apps, they can still browse the SharePoint Store and request an app.

When users request an app for SharePoint from the SharePoint Store, users can request a specific number of licenses and provide a justification for the purchase of the app for SharePoint. Submitted requests are added to the App Requests list in the App Catalog of the web application that contains the user's site collection. Farm administrators and the App Catalog site owner can view and respond to app requests.

Upgrading to SharePoint 2013

Upgrading to SharePoint 2013 from SharePoint 2010 is in many ways similar to upgrading from SharePoint 2007 to SharePoint 2010, as pointed out in the following:

- You are only able to upgrade from the previous version of SharePoint; that is, you can only upgrade to SharePoint 2013 from SharePoint 2010. If you are still using Windows SharePoint Services 3.0 or Microsoft Office SharePoint Server 2007, you must first upgrade to Microsoft SharePoint Foundation 2010 or Microsoft SharePoint Server 2010, as detailed at *technet. microsoft.com/en-us/library/cc303420.aspx*.

- You can upgrade to SharePoint 2010 by using the database attach upgrade method. Even though you might have been through the database attach process with the previous versions, you might find your experience with SharePoint 2013 to be different. When you upgraded previous versions of SharePoint, you mainly had to consider content in lists and libraries. However, like most organizations, you now have a larger amount of content stored in content databases, and you would have used other SharePoint capabilities—for example, MMS, Excel Services, InfoPath Services—or Business Intelligence functionality, such as Power Pivot or PerformancePoint Services (PPS).

  The methods for upgrading these other services are different from migrating content. The following service application databases support the database attach upgrade method:

  - BDC

  - MMS

  - PPS

  - Secure Store Services (SSS)

- User Profile (Profile, Social, and Sync databases)

- Search Administration

You might also find that some components—for example, if you have deployed PowerPivot v1.0—will block a database attach. This is when you might need to consider the next method.

- Create a clean SharePoint farm with new services and web applications and then use a third-party tool to incorporate content from SharePoint 2010 lists and libraries.

- Some components will require separate migrations; for example, Power Pivot, Excel Services, InfoPath Forms Service.

- Content migration is still supported using services and client code.

However, the upgrade process differs from the upgrade to SharePoint 2010 in the following aspects:

- In-place upgrade is not available. This means that you can no longer install SharePoint 2013 on the same hardware on which SharePoint 2010 is installed.

- The SharePoint 2013 upgrade process upgrades the database schema and content but not the site collections, which remain in SharePoint 2010 mode, also known as the SharePoint 2010 compatibility level. SharePoint 2013 is able to support both SharePoint 2010 and SharePoint 2013-mode site collections within the same web application, and requests are redirected as necessary to one of two root directories: the 14 hive, the SharePoint 2010 mode folder and the 15 hive, the SharePoint 2013 mode folder. This makes it possible for legacy solutions to work with SharePoint 2010-mode site collections; therefore, you can deploy your SharePoint 2010 solutions to the SharePoint 2013 farm, and in most cases they will work without needing any changes. However, it is likely that you will need to modify those solutions if you want them to work with SharePoint 2013-mode site collections.

- The Visual Upgrade option in SharePoint 2010 is replaced with an optional SharePoint 2013-mode snapshot of the site collection that you can use to evaluate new functionality and discover any upgrade issues.

- You can use a Site collection health check on SharePoint 2010 and SharePoint 2013-mode site collections, which completes checks similar to the pre-upgrade option in SharePoint 2010.

The next section describes these new upgrade options. You can find more information on the upgrade process on TechNet at *technet.microsoft.com/en-gb/sharepoint/fp142375*.

Using compatibility levels to create site collections

SharePoint 2010-mode site collections are not limited to those sites that were created on your SharePoint 2010 farm and included into your SharePoint 2013 when you completed a database attach. By default, any SharePoint 2013 farm allows users to create a new site collection as either SharePoint 2010 mode or SharePoint 2013 mode, as shown in Figure 1-24.

FIGURE 1-24 You can create a new site collection in either 2010 or 2013 mode.

A user can create a site collection in either mode, with SharePoint 2013 being the default. To create only SharePoint 2013 site collections, use the following Windows PowerShell commands, substituting your web application URL for *intranet.adventure-works.com*.

```
$webapp = Get-SPWebApplication http://intranet.adventure-works.com;
$webapp.CompatibilityRange = [Microsoft.SharePoint.SPCompatibilityRange]::NewVersion;
$webapp.Update();
```

To display compatibility settings, use the following command:

```
$webapp.CompatibilityRange
```

This generates the following output:

```
MaxCompatibilityLev MinCompatibilityLev DefaultCompatibilit              Singular
            el                  el                  yLevel
------------------- ------------------- -------------------              --------
              15                  15                  15                    True
```

By using this setting, when you go to the site collection page, in the Template selection, there will be no drop-down menu; instead, the text "2013 experience version will be used" is displayed. When you want site collections created only in SharePoint 2010 mode, set the *SPComabilityRange* value to *OldVersions*, or use *AllVersions* to create site collections in either SharePoint 2013 or SharePoint 2010 mode.

Upgrading from a SharePoint 2010-mode site collection

In SharePoint 2010 mode, sites are displayed as they would be on a SharePoint 2010 farm and only SharePoint 2010 features are enabled. You can allow site collection administrators to upgrade their site collection or a farm administrator can upgrade site collections by using Windows PowerShell.

If you have any SharePoint 2010-mode sites that you upgraded from Microsoft Office SharePoint Server 2007 and are still using the SharePoint Server 2007 user interface, you cannot upgrade them to SharePoint 2013 mode. In SharePoint 2010 you could upgrade the SharePoint Server 2007 user interface to the SharePoint 2010 user interface by using the visual upgrade feature. This feature is not available in SharePoint 2013; therefore, sites that use the SharePoint Server 2007 user interface must either move to the SharePoint Server 2010 user interface before the content databases that contain those sites are attached to SharePoint 2013 or the upgrade process will force a visual upgrade.

> **Note** If you are upgrading from SharePoint Server 2010 and use My Sites, ensure that the web application where you host your My Sites and its content database are ready for users to upgrade their My Sites successfully before you allow users to access their My Sites upgrade the My Site Host site collection.

The site collection administrator upgrade process

By default, site collection administrators can upgrade their own site collections. A pink status bar is visible at the top of each page, as illustrated in Figure 1-25. You can click the "X" at the right end of the status bar to make it disappear; however, when you redisplay the page, the status bar is redisplayed.
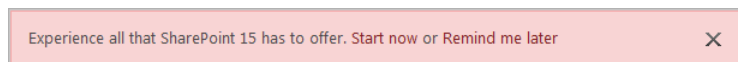
FIGURE 1-25 A status message displayed at the top of SharePoint 2010-mode site collection pages.

Remind me notifications and links If you click Remind Me Later, the status bar message is hidden from the site collection administrator for 30 days. This value can be changed by modifying the web application *UpgradeReminderDelay* property by using the following Windows PowerShell commands, where *15* is the number of days for the new notification setting for the web application. Substitute your web application URL for intranet.adventure-works.com.

```
$webapp =Get-SPWebApplication http://intranet.adventure-works.com;
$webapp.UpgradeReminderDelay = 15;
$webapp.update();
```

> **Note** You can provide an additional link on the status bar to another page on which you could provide additional information; for example, you could give notifications about your organization's upgrade plans and training program. No default page exists for such information, and then the link is not present. If you want to use this option, first create your page in a location where site collection administrators can access and then use Windows PowerShell to edit the web application *UpgradeMaintenanceLink* property.

Site collection upgrade page   On the status bar message, when Start Now is clicked, you are redirected to the Site Collection Upgrade page, as shown in Figure 1-26. You can also navigate to it from the Site Settings page by clicking Site Collection Upgrade in the Site Collection Administration section.

Prepare for takeoff!

We'll start with a few pre-flight checks, and then prevent any changes to your sites while you're upgrading.

Upgrade this Site Collection

From project sites to team mailbox, SharePoint's got a hundred new ways to help you work smarter.

Before you take the leap, try a demo upgrade to see how it will turn out. We can set it up in 1-2 days.

LEARN MORE

TRY A DEMO UPGRADE

FIGURE 1-26 The Site Collection Upgrade page is where you can upgrade the site collection, learn more about the upgrade process, or try a demo upgrade.

When you click Try A Demo Upgrade, a dialog box opens, in which you can create an upgrade evaluation site collection.

> **Note** You can prevent site collection administrators from creating an upgrade evaluation site collection by setting the web application *AllowSelfServiceUpgradeEvaluation* property to *0*. The Try A Demo Upgrade link will no longer be displayed. The *AllowSelfServiceUpgradeEvaluation* property is also available at the site-collection level, so you can decide on a per-site collection level whether to allow site collection administrators to create upgrade evaluation site collections.

Click Upgrade This Site Collection to display the Just Checking dialog box, as depicted in Figure 1-27, and then click I'm Ready to start the upgrade process. After you or the site collection administrator has started the upgrade process, there is no going back.
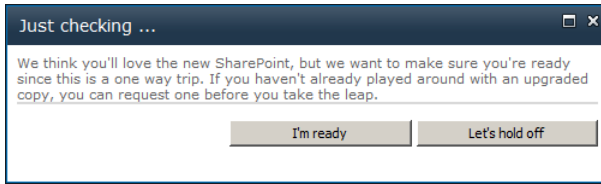
FIGURE 1-27 Click I'm Ready to start the site collection upgrade process.

When you click I'm Ready, the Upgrade Status page appears, and the message in the pink status bar changes to "We're doing work to improve this site. Please bear with us if you experience temporary delays or glitches". A site collection health check is run in repair mode to ensure that the site collection is healthy enough to upgrade successfully. If the health check is successful, the remainder of the upgrade process occurs. The page automatically updates as the upgrade progresses and displays upgrade process information, including, errors or warnings, upgrade start time, and where you can find the upgrade log file.

> **Note** You can also view the upgrade status by clicking Site Collection Upgrade on the site setting page and then clicking Review Site Collection Upgrade Status.

After the upgrade process has concluded successfully, the Upgrade Status page displays, as shown in Figure 1-28.

FIGURE 1-28 The Upgrade Status page displays the results of the upgrade process.

Each site collection administrator has an upgrade log (*.txt*) for their site collection. These files comply with the Unified Logging System (ULS) conventions. The *.txt* files are created in the evaluation site in the *_catalogs/MaintenanceLogs* folder. Thus, when the evaluation site is deleted, these files will also be deleted, so you might want to save these files to another location. When you upgrade a site collection, the same .txt files are created in the same folder.

You can also find the upgrade status for a site collection by using Windows PowerShell commands as shown in the following example, together with its output:

```
$site = Get-SPsite http://intranet.adventure-works.com/sites/sp2010_2
$site.UpgradeInfo


Status      : Completed
UpgradeType : VersionUpgrade
Errors      : 0
Warnings    : 1
RequestDate : 13/09/2012 22:05:07
StartTime   : 13/09/2012 22:05:07
LastUpdated : 13/09/2012 22:05:25
RetryCount  : 1
LogFile     : _catalogs/MaintenanceLogs/20120913-230507-692.txt
ErrorFile   : _catalogs\MaintenanceLogs\20120913-230507-692-error.txt
```

Note As with SharePoint 2010, you must take care when using Windows PowerShell with objects that implement the *IDisposable* interface, such as sites, site collections, and the site administration objects. Therefore, if you run code similar to that shown in the preceding example, use *$site.Dispose()* or the *SPAssignment* cmdlets.

Managing site collection upgrades

When a web application is created, an Upgrade Site Collection timer job is created for that web application, which is scheduled to run once every minute. When a site collection administrator clicks the I'm Ready button in the dialog box, or the farm administrator uses Windows PowerShell to start a site collection upgrade, the site collection is placed in an upgrade queue, which gives the Upgrade Site Collection timer job the ability to run parallel upgrades when possible. The site collections are upgraded in the order in which they are added to the queue.

Also, to prevent site collection upgrades from affecting the performance of the SharePoint server as it gets on with other tasks, the timer jobs are throttled to only allow a maximum number of site collection upgrades at one time. Using Windows PowerShell, a SharePoint farm administrator can do the following:

■ Modify the upgrade throttling settings for a web application or content database

■ Add a site collection to the upgrade queue

■ Remove a site collection from the upgrade queue

■ View the upgrade queue and use filters to see which site collections are currently being upgraded

Modifying the upgrade throttling settings There are four settings, three web application throttles and one at the content database throttle, that you can change to affect the number of site collections that will be upgraded in parallel:

- The web application *AppPoolConcurrentUpgradeSessionLimit* throttle (default, 5) and the content database *ConcurrentSiteUpgradeSessionLimit* throttle (default, 10) work together to limit the number of concurrent upgrades that can take place at any one time.

  - The *AppPoolConcurrentUpgradeSessionLimit* is the number of site collections that can be upgraded per SharePoint server for the web application.

  - The *ConcurrentSiteUpgradeSessionLimit* limits the maximum number of site collections that can be upgraded per content database across all SharePoint servers.

  For example, if an upgrade queue for a web application contains 12 site collections, all site collections are contained within one content database, and the farm consists of two SharePoint servers, only 10 site collections will be taken off the upgrade queue to be processed. The two remaining site collections will remain on the queue for the next execution of the timer job on one of the servers.

- The two web application throttles, *UsageStorageLimit* (default, 10 MB) and *SubwebCountLimit* (default, 10 sites), limit those site collections that can be upgraded by site collection administrators (known as self service). If a site collection is greater than *UsageStorageLimit* or contains more than *SubwebCountLimit* sites, those site collections must be upgraded by the SharePoint farm administrator.

You can view the upgrade throttle settings for a web application, by using Windows PowerShell commands, as shown in the following example, together with its output:

```
(Get-SPWebApplication '
    http://intranet.adventure-works.com).SiteUpgradeThrottleSettings


AppPoolConcurrentUpgradeSessionLimit : 5
UsageStorageLimit                    : 10
SubwebCountLimit                     : 10
Name                                 :
TypeName                             : Microsoft.SharePoint.Administration.SPSi
                                       teUpgradeThrottleSettings
DisplayName                          :
Id                                   : 20ab6845-aa50-42f6-9b24-87d5b1f3c6f3
Status                               : Online
Parent                               : SPWebApplication
                                       Name=intranet.adventure-works.com
Version                              : 9203
Properties                           : {}
Farm                                 : SPFarm Name=SP2013_Config
UpgradedPersistedProperties          : {}
```

To view the throttle settings for all content databases, use the following commands:

```
Get-SPContentDatabase | select Name, ConcurrentSiteUpgradeSessionLimit

Name                               ConcurrentSiteUpgradeSessionLimit
----                               ---------------------------------
CTHub_Content                                                     10
SPIntranet_AdvWorks_Content                                       10
MySitesAdvWorks_Content                                           10
Portal_Content                                                    10
TeamsAdvWorks_Content                                             10
```

Upgrading site collections   Microsoft does not recommend that you upgrade all site collections as part of the initial upgrade process and that site collection administrators should be left to upgrade their site collections. Microsoft does state that there are circumstances for which you might need to upgrade site collections, such as the following:

- Extremely important sites

- Very large sites

- Highly customized sites

However, after a period of time you might want to upgrade those site collections that are still in SharePoint 2010 mode. You can use the following Windows PowerShell command to upgrade a site collection:

```
Upgrade-SPSite -VersionUpgrade http://intranet.adventure-works.com/sites/sp2010
```

Note You can use the *Upgrade-SPSite* command to repair failed upgrades.

There are number of parameters that you might want to use on this command:

- **-QueueOnly**   This places the site collection on the upgrade queue.

- **-Unthrottled**   Use this parameter to start the upgrade immediately; the site collection is not placed in the upgrade queue.

- **-Email**   Use this to specify whether to send an email upon completion of the site collection upgrade.

Note To prevent site collection administrators from upgrading site collections, set the site collection *AllowSelfServiceUpgrade* property to *false*.

Removing a site collection from the upgrade queue   To remove a site collection from the upgrade queue, stop the appropriate web application site collection upgrade timer job and then remove the site from the queue by using the Windows PowerShell *Remove-SPSiteUpgradeSessionInfo* cmdlet. Next, restart the timer job to resume the upgrade process for the remaining sites in the queue.

> **Note** A site collection cannot be removed from the queue if it is currently being upgraded.

Viewing the upgrade queue   To view all site collections in the upgrade queue for each content database in the SharePoint farm, use the following command:

```
Foreach ($db in Get-SPContentDatabase) {
   Get-SPSiteUpgradeSessionInfo $db -ShowInProgress -ShowCompleted -ShowFailed | ft
}
```

To view all site collections in all upgrade queues for a SharePoint farm, use the following command:

```
foreach ($site in (Get-SPWebApplication).Sites) { '
    $site.url; '
    Get-SPSiteUpgradeSessionInfo -Site $site; '
}
```

Using an evaluation site

Before a site collection owner decides to upgrade, he can ask for a demo upgrade site, also known as an upgrade evaluation site collection. This is a copy of his site collection but in SharePoint 2013 mode. Using the evaluation site, he can review the new interface and functionality and then determine what works. Any solutions will need to be reactivated. The site collection administrator should also consider asking advance users to check on the evaluation site for any customizations and solutions that they have created. He should also ask them to use the evaluation site to try their favorite approaches to creating so that they start to learn the new interface, new features, or discover any limitations.

The evaluation site is created by the Create Upgrade Evaluation Site Collection timer job that is scheduled to run daily. There is one timer job for each web application in farm. When a site collection owner clicks the Create An Evaluation Site Collection link a second time, before the timer job has run, the message box shown in Figure 1-29 opens.

We've received your demo site request   □ ✕

We're working on your request for an upgrade demo site collection and will get it to you as soon as possible. Since it may take a day or two before the new upgrade demo site collection is available, we'll email you once it's ready.

Close
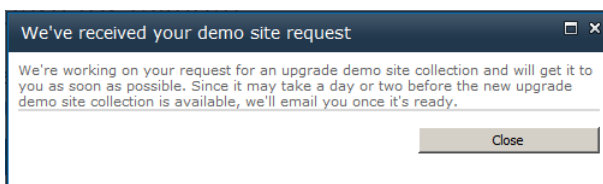
FIGURE 1-29 A message box appears when you click Create An Evaluation Site Collection a second time.

Note You can use PowerShell to determine if a site collection is an evaluation site by displaying the site collection property *IsEvalSite.*

If you click Try A Demo Upgrade and an evaluation site already exists, the message box depicted in Figure 1-30 appears.
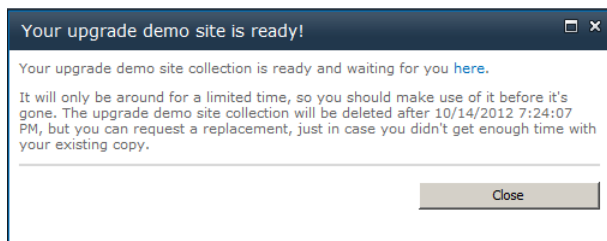
FIGURE 1-30 A message box indicating that an upgrade demo site already exists.

The evaluation upgrade site is created either by snapshot if you are using the Enterprise version of SQL Server or by backing up the site collection and restoring it to the new URL. It is created by default in the same content database as the original site collection with a URL similar to the copied site collection, but with *-eval* appended to the URL. For example, if the original site had a URL of *http://intranet.adventure-works.com/sites/SP2010*, the evaluation site will have a URL of *http://intranet.adventure-works.com/sites/SP2010-eval*. A pink status bar is displayed at the top of each page, as demonstrated in Figure 1-31.

FIGURE 1-31 The evaluation site warning message informs the user when the evaluation site will be deleted; by default the expiration period is 30 days.

After the evaluation site collection is created, it coexists alongside the original site collection; however, changes to the original site collection are not replicated to the evaluation site after the snapshot is taken.

The evaluation site collection is deleted by the web application's timer job, Delete Upgrade Evaluation Site Collection job, which is scheduled to run daily. Evaluation sites are deleted by default 31 days after they have been created. This value can be changed by modifying the web application *UpgradeEvalSitesRetentionDays* property.

Running the site collection health checker

To run the health checker, on the Site Settings page, click Site Collection Health Checks (see Figure 1-32) to go to the Site Collection Heath Checks page and then click Start Checks.
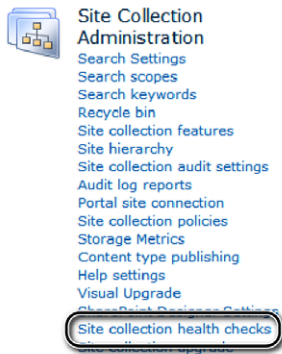
FIGURE 1-32 Use the Site Collection Health Checks link on the site settings page to navigate to the Site Collection Health Checks page.

The Site Collection Health Check Results page displays, similar to that illustrated in Figure 1-33.

FIGURE 1-33 The Site Collection Health Check Result page identifies problems that you should consider fixing, either before or after upgrading.

The health check can be run on SharePoint 2010-mode and SharePoint 2013-mode sites. In SharePoint 2013, when running the health check on a site collection created from the Publishing Portal SharePoint 2013 site template, it reported problems that a number of files are customized by default when the site was created, as shown in Figure 1-34. Because such a site was not created from an upgraded SharePoint 2010 site, you should not reset those files.

Site Settings › Site Collection Health Check Results

Unfortunately we found some problems

Try it again

You should consider fixing these before upgrading, or make note of them as potential sources for issues after upgrading. We recommend trying out the fixes on a copy of your site collection before you make changes to your production site.

Consider fixing the following problem(s) either before or after upgrading:

Customized Files

The following files have been customized from their default and may present some unexpected visuals or behavior after upgrade:

- http://intranet.adventure-works.com/_catalogs/masterpage/WelcomeSplash.html - Reset page to default
- http://intranet.adventure-works.com/_catalogs/masterpage/CatalogArticle.html - Reset page to default
- http://intranet.adventure-works.com/_catalogs/wfpub/Collect Feedback - SharePoint 2010/ReviewFeedback_1033.xoml.wfconfig.xml - Reset page to default
- http://intranet.adventure-works.com/_catalogs/masterpage/oslo.html - Reset page to default
- http://intranet.adventure-works.com/_catalogs/masterpage/CatalogWelcome.html - Reset page to default
- http://intranet.adventure-works.com/Pages/default.aspx - Reset page to default
- http://intranet.adventure-works.com/_catalogs/masterpage/startermaster.html - Reset page to default
- http://intranet.adventure-works.com/_catalogs/masterpage/ArticleLinks.html - Reset page to default
- http://intranet.adventure-works.com/Translation Packages/Forms/Translation Package/template.dotx - Reset page to default
- http://intranet.adventure-works.com/_catalogs/masterpage/ArticleRight.html - Reset page to default
- http://intranet.adventure-works.com/_catalogs/masterpage/EnterpriseWiki.html - Reset page to default
- http://intranet.adventure-works.com/_catalogs/wfpub/Approval - SharePoint 2010/ReviewApproval_1033.xoml.wfconfig.xml - Reset page to default

Tell me more

FIGURE 1-34 SharePoint 2013-mode sites by default can contain problems reported by the health check.

You can also start the site collection health check by using the Window PowerShell *Test-SPSite* cmdlet, and you can use *Repair-SPSite* to repair issues found. You cannot add additional health checks; however, you can extend the health rules included in the health checks.

Licensing in SharePoint 2013

With both Microsoft Office SharePoint Server 2007 and SharePoint Server 2010, there were two versions of SharePoint Server: a Standard edition and an Enterprise edition. In a SharePoint farm your organization would decide to install one or the other. For example, you would install one or more servers running SharePoint Server Enterprise and purchase SharePoint Server Enterprise client access licenses (CALs). All users who accessed that server could use the full Enterprise feature set. There was no way to mix both standard and enterprise CALs on one farm; the only way to ensure that only users who had an Enterprise CAL accessed Enterprise features was to have separate Enterprise and Standard farms.

With SharePoint Server 2013, you still have to purchase a server license for each server, and that server license is now the same whether you want to use Standard or Enterprise CALs. However, now, within one SharePoint Server farm, you can assign either Standard or Enterprise CALs to users and enable license checks. With this new functionality, you can ensure that only users with the appropriate license can use a specific feature. You can purchase SharePoint Server CALs or a CAL suite which includes Exchange and Lync. SharePoint Server CALs can also be purchased as user CALs or device

CALs. Many of the functionality that was only included in the Enterprise edition of SharePoint Server 2010, require Enterprise CALS, such as the Business Intelligence service applications and InfoPath Form Services.

By default, SharePoint Server CAL licensing is disabled and can be enabled and managed by using the following new Windows PowerShell cmdlets:

■ *New-SPUserLicenseMapping*

■ *Add-SPUserLicenseMapping*

■ *Remove-SPUserLicenseMapping*

■ *Get-SPUserLicenseMapping*

■ *Enable-SPUserLicensing*

■ *Disable-SPUserLicensing*

■ *Get-SPUserLicense*

More Info You can find an introduction to User License enforcement in SharePoint Server 2013 at *blogs.technet.com/b/wbaer/archive/2012/11/12/introduction-to-user-license-enforcement-in-sharepoint-server-2013.aspx.*

Summary

Cloud computing is definitely a theme of SharePoint 2013 and will continue to be going forward. The core architecture of SharePoint 2013 has remained the same as that of SharePoint 2010. However, SharePoint 2013 includes a number of performance improvements at the architectural level such as shredded storage, whereby versions of the same file are saved as deltas of the original file; SharePoint farm-level cross-server caching, whereby the same information is synchronized across every web server; and a new Workflow Framework that can be hosted on servers on which SharePoint 2013 is not installed.

SharePoint 2013 includes three new service applications: Machine Translation, Work Management, and App Management. It also features a number of changed service applications—in particular a unified search service application that has been developed from the ground up, which is the combination of SharePoint Server 2010 enterprise search and Fast Search for SharePoint 2010. This service application is now so crucial to a SharePoint farm that it should be the first service application you should create. The functionality of two service applications has been redesigned to such an extent that they do not exist as entities. The Web Analytics functionality is now incorporated into search, and Office Web Apps is now a separate product that cannot be installed on the same servers as SharePoint 2013, but needs its own servers if you want to use it.

Web Applications and site collections from an architectural perspective are much as they were in SharePoint 2010. Claims-based authentication is now the default and HNSCs are now fully supported. Many of the additional functions that has been added to the SharePoint 2013 services can be configured at the site-collection and site level, giving site collection and site owners more options regarding how they prefer to use SharePoint.

A new application framework has been added to SharePoint 2013 that facilitates the development of applications for Office and SharePoint, both in the cloud and on-premises. Organizations can use the Application Management Service Application to host their own Apps Catalogs rather than to publish their internal Office and SharePoint Apps to Microsoft's online market place.

The SharePoint 2013 upgrade process only supports the database attaches and separates the upgrade of the database schema and content from the site collections.

Social computing

Social computing is a big investment area in Microsoft SharePoint Server 2013, which now functions like Facebook and Twitter. SharePoint 2013 includes a number of new social features that can assist users in your organization to share ideas. Some of the most significant include the following:

- Microblogs

- Hash tags and @mentions

- Company, site, and personal newsfeeds

- Hash tag trending and other social analytics via the new search engine

- Community sites

- Richer SharePoint user profiles populated with useful social information

- Gamification (users can now earn badges to promote engagement)

The other significant social computing event that occurred in the middle of 2013 was Microsoft's acquisition of the office social network site, Yammer, which is a tool for making companies and organizations more productive through the exchange of short frequent answers to one simple question. At the time that this chapter was written, there was no out-of-the-box integration of SharePoint Server 2013 and Yammer.

SharePoint Server 2013 Enterprise social networking

The social and collaboration features in SharePoint Server 2013 help users to connect and communicate with each other and find, track, and share important content and information. These features are exposed through the use of My Sites, Team sites, and Community sites. Community sites are created from a new site template, Community Site. My Sites and Team sites are centered on people, feeds, and following, whereas Community sites are centered on discussions and reputations; for example, What's Happening displays how many members, discussions, and replies the community has. Also community features can be activated on existing collaboration sites.

Note To investigate the important areas in Enterprise Social Networking (ESN), Microsoft hired Harris Interactive to conduct a study concerning ESN usage and adoption. The survey found that 59 percent of respondents consider it "absolutely essential" or "extremely important" for ESN software to be integrated with their companies' existing infrastructure. Regarding which types of communications ESN software should facilitate, 67 percent of respondents said instant messaging, followed by email (64 percent); video conferencing (62 percent); being able to "follow" people, documents, or sites (51 percent); audio conferencing (47 percent); activity streams (34 percent); video sharing (33 percent); being able to "like" content or people (28 percent); and microblogging (26 percent). You can find an executive summary of the report at: *download.microsoft.com/download/B/D/D/BDDDA21D-2B10-4426-BC89-944E5AC56112/Harris_Interactive-Executive_Summary.docx.*

User profiles and My Sites (also known as personal sites) have been around for a number of Share-Point Server releases. A user profile is a collection of properties that describes a single user. The User Profile service application maintains the policies and other settings associated with each property. User profiles help identify connections between users in an enterprise, such as their common managers, workgroups, group membership, and common websites. They can also contain important information about a user, such as the products a user works on, the user's interests or areas of expertise, and a user's place in the organization's structure. User Profile properties are displayed on a profile page, which is separate from a user's My Site. User profiles provide the basis for social computing in SharePoint Server 2013. Some of the ESN features that user profiles support are as follows:

- My Sites
- Profile pages
- People searching
- Organizational charts
- Expertise search
- Social tagging
- Audiences

Note Organization profiles are deprecated in SharePoint Server 2013.

Organizations can decide whether to allow users a profile page or a profile page and a My Site. If a user has a profile page but no My Site, many of the social computing features of SharePoint Server 2013 will not be available to them; however, they will be able to do the following:

- Visit and edit their profile. Users can enter any information about themselves that they want, including adding a photo.

- Follow people. Through their People page, users can see and reply to the latest Microblog posts.

- Visit the profile pages of other people.

- Have people @mention them, which results in the user receiving an email.

Users who do not have a My Site will not be able to do the following:

- Create any root microblog posts.

- View Microblog posts of people they are following in the consolidated feeds Web Part.

- Redirect from the Newsfeed page to their Profile page.

- Follow content.

- Follow tags.

- Aggregate tasks.

- Upload documents or complete any My Site activities.

- @mention somebody.

Social computing user interface improvements

SharePoint Server 2010 greatly updated the user's My Site experience. Improvements included a snapshot display of a user's presence information as well as details of what they were blogging about. Users could identify colleagues and publicize their interests and expertise. The My Site made it possible for users to organize their information, display where they were in the organization, and give other users who visited a person's profile page an opportunity to decide if the person was the right choice to contact when looking for a specific set of skills or information. SharePoint 2010 also provided the notion of tags and a note board to which users could go to post notes. Many organizations thought of the My Site experience in SharePoint Server 2010 as an outstanding phone directory that provided more information than could be found in a Microsoft Exchange global address list. With My Site, users could find people quickly. SharePoint Server 2010, therefore, provided a start of the social framework, which has now been extended in SharePoint Server 2013.

As with SharePoint Server 2010, in SharePoint 2013, the server administrator must create a User Profile service application and a location where My Sites are to be hosted. It is best to create a separate Web Application to host My Sites, where the root site collection is created using the My Site Host site template, and the user's My Sites are created as site collections under a managed path, such as, personal. Creating the User Profile server application is the same as in SharePoint Server 2010. Once provisioned, the User Profiles service application creates three databases: Profile, Social, and Sync.

When users have the permission to create a My Site, the out-of-the-box behavior is to allow SharePoint Server to create that site when the user click Sites in the browser. Some organizations will pre-create a user's My Site. One scenario for which the pre-creation of users' My Sites might be considered is when an organization launches its first company-wide SharePoint website. Many users, all eager to try the new functionality, might click one of the links in a very short period of time, which would result in the creation of their My Site. This results in the spawning of many My Site provisioning timer jobs. This affects the ability of the SharePoint servers to respond to other user requests and therefore could detrimentally affect users' view of the team implementing SharePoint. Pre-creating users' My Sites mitigates such a scenario. Another reason of pre-creating users' My Sites is related to operational service level agreements: the IT department might not want for all My Sites to reside in one content database. The disadvantage of pre-creating My Sites is that many users in an organization might not use them or do not need them.

If a person has not created a My Site, the first time she clicks on of the social command that requires a My Site, such as the Follow on the Share menu, a Wait A Minute pop-up message box is displayed, as shown in Figure 4-1. SharePoint will then create the My Site.

Wait a minute   ×

To follow documents or sites, we need to get a couple of things set up. This can take a few minutes to complete, and once it's done, you'll need to come back to this site and try following again.

Get started   Cancel
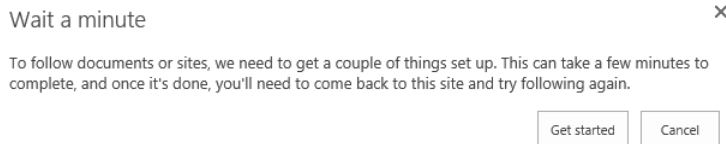
FIGURE 4-1 Users who don't have a My Site will see the Wait A Minute pop-up message box when trying to use social functionality that requires a My Site.

SharePoint Server 2013 is organized into three distinct hubs:

- **Newsfeed** This is the primary landing page for social activities in SharePoint 2013; thus, it is also referred to as the *social hub*. Newsfeed is hosted on the My Site Host site collection and provides quick access to the lists of people, documents, sites, and tags that a user is following. It is in the Newsfeed hub that users can create posts or start "conversations" by using the new microblog feature.

- **SkyDrive**   The SkyDrive hub is the Documents library (My Documents) on the user's My Site. As the link to this document library is on the global navigation, users can access their personal library from anywhere.

- **Sites**   The Sites hub displays promoted sites, sites you are following, and suggested sites.

Users can find links to the three hubs on the global navigation bar, as shown in Figure 4-2. There-fore, users no longer need to specifically visit their My Site to access social features; the social features associated with My Sites are fully integrated into the SharePoint experience.
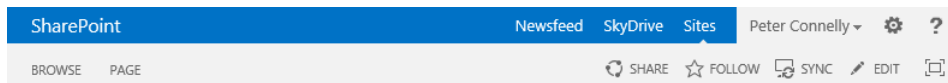
FIGURE 4-2 You can use the Newsfeed, SkyDrive, and Sites links on the global navigation bar to access social features associated with your My Site.

Below the global navigation bar, on the Sharing menu, the following links are available:

- **Share**   Use this link to quickly share a site. In SharePoint 2010 to share a site you would navi-gate to the Site Permissions page. You can still use this method to configure the permission settings of the site.

- **Follow**   Use this link to follow a site. You can find the sites you follow by using the Sites hub. The Follow command on the Sharing menu is only available if the Following Content site fea-ture is activated. The Follow command can also be used to follow people, content, documents, sites, and tags. On the Newsfeed hub, you can find an aggregation of the content that you follow. Also, if you follow, for example, a document and someone else is modifying and saving that document, you will receive a notification that the user has changed the document.

- **Sync**   Use this link to create a synchronized copy of a document library in a subfolder in the SharePoint folder of your home directory (*%userprofile%\SharePoint*). The SharePoint folder is displayed under Favorites in Windows Explorer, as shown in Figure 4-3.
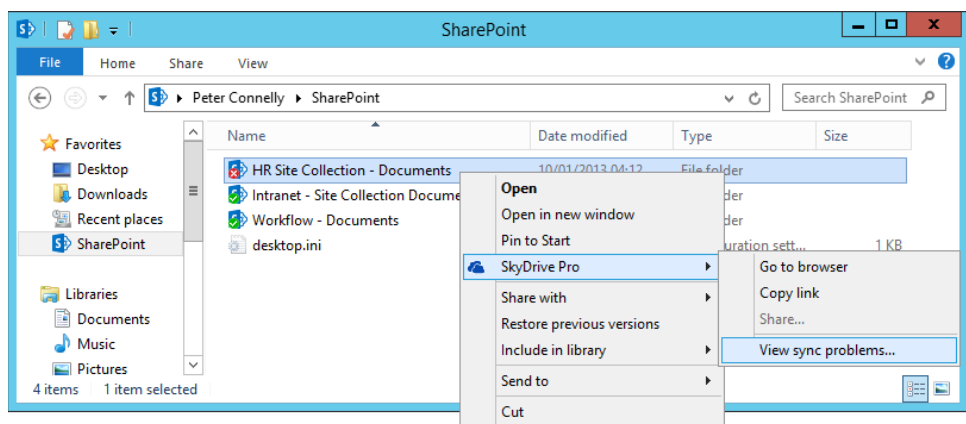
FIGURE 4-3 You can use SkyDrive Pro to take synchronized files between your computer and libraries on SharePoint sites.

The subfolder has the naming convention *<site name> - <library name>*. After you sync a library, you can access all of the files within it from Windows Explorer and Microsoft Office, even if you don't have an Internet connection. The technology used to synchronize the SharePoint library with the computer folder is SkyDrive Pro, which replaces SharePoint Workspace. SkyDrive Pro is part of Office 2013 (Standard or Professional edition) or an Office 365 subscription that includes Office applications.

A SkyDrive Pro icon is provided in the Windows system tray, with which you have easy access to the SkyDrive Pro menu, as shown in Figure 4-4.
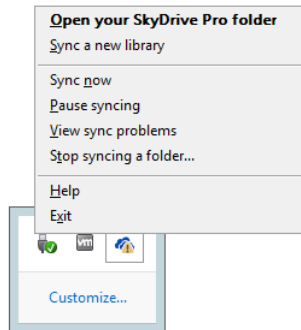
FIGURE 4-4 The SkyDrive Pro menu in the Windows system tray, which you can use to start the Sync Library Wizard.

The Newsfeed hub

Figure 4-5 shows the Newsfeed hub. It consists of four Web Part zones which you can see when the page is in edit mode. The Web Part zones are named Top Zone, Middle Left Zone, Middle Right Zone, and Bottom Zone. The Newsfeed Web Part and two hidden Web Parts—MySite Personal Site Upgrade On Navigation and MySite First Run Experience—are placed in the Middle Left Zone, and the Followed Counts and Trending Hashtags Web Parts are placed in the Middle Right Zone.

Note You can find a SharePoint Newsfeed app for Windows Phone at *office.microsoft.com/ en-us/office365-sharepoint-online-enterprise-help/try-the-sharepoint-newsfeed-preview-app-HA103683516.aspx*.

The MySite Personal Site Upgrade On Navigation Web Part creates or upgrades a user's personal site when the user navigates to My Site, such as, when he clicks Sites in the global navigation bar or when he clicks the down-arrow to the right of his name and then clicks About Me.
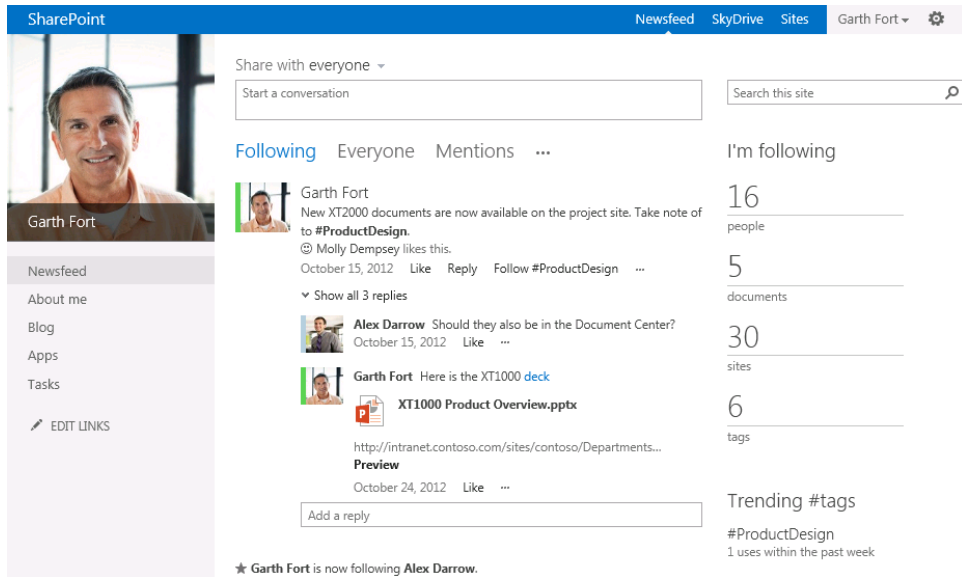
FIGURE 4-5 The Newsfeed hub, also known as the social hub of SharePoint Server 2013.

As the My Site is created, the MySite First Run Experience Web Part displays the We're Almost Ready page and the Let's Get Social dialog box, also known as the My Site privacy notification dialog box, as shown in Figure 4-6.
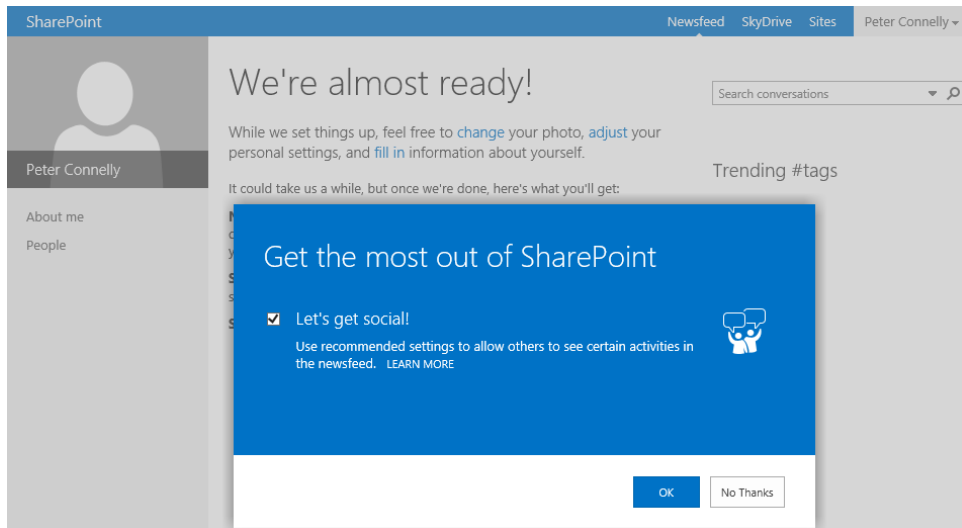
FIGURE 4-6 A user's first experience to his personal My Site.

The Followed Counts Web Part displays the counts of followed users, content, and tags for the current user. The Trending Hashtags Web Parts, also known as *AnalyticsHashTagWebPart*, is a client-side Web Part that helps the user find new social content. Together with the Newsfeed Web Part, the user can take advantage of these two Web Parts to narrow down all the information that is scattered throughout the enterprise and ensure that they can tag and follow tags.

The Newsfeed Web Part

The Newsfeed Web Part, also known as *MicroFeedWebPart*, consists of two parts: the microblogging text box (labeled Share With Everyone), and a unified overview of content that you can filter by the content that you're following, content available to everyone in your organization, content where you are mentioned, content that you like, and social activities that you have completed (such as following or microblogging and replies). The last two filters might not be immediately visible within the News-feed Web Part. To display the Additional Options menu, click the ellipsis to the right of Mentions, as shown in Figure 4-7.
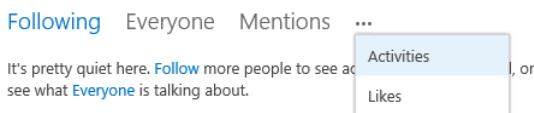
FIGURE 4-7 Select the Additional Options menu to display Tasks assigned to you (Activities) or content that you like (Likes).

If you're familiar with popular social networking sites, such as Facebook and Twitter, you will know how to use the new microblogging features in SharePoint Server 2013, which you can use to participate in threaded conversations in the Newsfeed Web Part.

With microblogging, you can do the following:

- Start a conversation that is shared with everyone in your organization.

- Share entire conversations by copying a link to the conversation.

- Share a post to a newsfeed on a site that you are following, as shown in Figure 4-8.

  When you share a post with sites that you're following, the Newsfeed hub displays the post with site name to the right of your name. The site name is a link to the site so that you can quickly navigate to it. When you go to the site, the conversation you posted on the Newsfeed hub also appears on the newsfeed for the site.
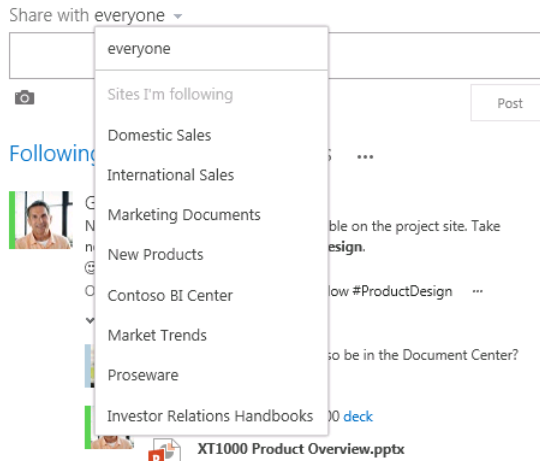
FIGURE 4-8 With the microblogging Share menu, you can post conversations to everyone in your organization or to a select group of people.

- "Like" posts in your newsfeed. People following you see posts you found interesting in their newsfeeds. You can view your "likes" later and find these posts again.

- Include pictures, videos, links to documents, and web URLs in your posts. You can modify web URLs to display as text.

- Refer to other people in your posts by entering the "@" character followed by sufficient characters to suggest the person in the autocomplete box, as shown in Figure 4-9. Initially the autocomplete box displays people who you are following, but as you type more characters and less people are found as a result, the search is expanded to Everyone. People are notified when they are mentioned in a post.
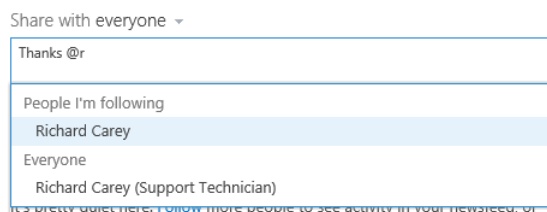
FIGURE 4-9 As you type a person's name, the autocomplete provides suggestions.

■ Include tags in newsfeed posts, which are dynamically pulled from or added to the Managed Metadata Service (MMS). Similar to @mentions, an autocomplete box displays MMS tags. You can quickly view all conversations that reference that tag by clicking the tag to display the About #tag page. Also while on this page, you can add a description, edit the tag, and add related tags. When you place the cursor over a post a hover card is displayed that contains more information about the conversation, as shown in Figure 4-10.
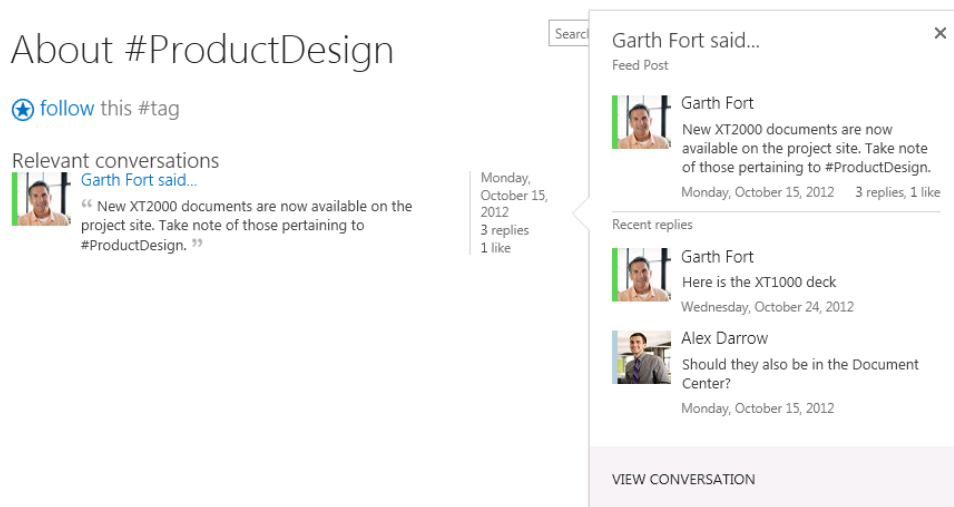
FIGURE 4-10 You can use the About #tag page to view all conversations that reference a tag.

Site feeds

Newsfeeds are available by default on a number of sites other than My Sites, such as team sites, project sites and community sites; however, they are not available on publishing sites. The Newsfeed functionality is enabled by activating the Site Feed site feature, which creates the Microfeed app (list) and makes it possible for you to add the Site Feed Web Part to pages. It is the Site Feed Web Part that displays the microblogging text box and the aggregation newsfeeds posted to the site. By default, when the Site Feed site feature is activated on a site, the Site Feed Web Part is added to the site's home page, identified by the title Newsfeed.

Site feeds will appear on the Sites hub only when both the Site Feeds and Following Content site features are activated.

> **Note** If the Site Feed Web Part is removed from the home page so that users can quickly navigate to the site's Newsfeed, consider adding a link to the Newsfeed page. The link to a site's newsfeed follows the format http://*<sitename>*/newsfeed.aspx.

The Sites hub

Figure 4-11 shows that when a user clicks Sites on the global navigation bar, the Sites view (*sites.aspx*) of the Social app (list) on the user's My Site displays.
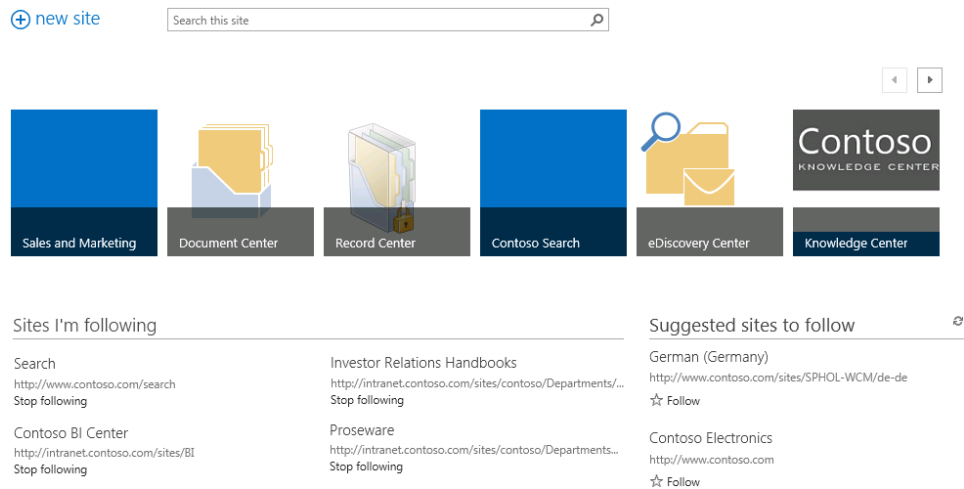
FIGURE 4-11 Use the Sites hub to find sites.

If Self-Service Site Creation is enabled on the Web Application that is hosting the My Sites, and the Start A Site Link is configured not to be hidden from users, the page contains a link to create a new site collection. The page also contains the following three Web Parts:

- The PromotedSitesWebPart displays a set of thumbnails with links to sites that are registered as promoted sites in the User Profile service application. When there are no promoted sites, the Web Part does not display anything, and users will only see the other two Web Parts. You can use Audiences if you want a link to a site that you want to display for a specific set of users.

- The Sites I'm Following Web Part, which is an XsltListViewWebPart that displays the contents of the Social app (list) that have been created by using the Followed Item content type.

- The Suggested Sites To Follow Web Part, known as ProjectSearchBrowseWebPart, suggests links to sites which are calculated by using search results based on what your colleagues are following.

Note Two new site templates included with SharePoint Server 2013 are the Community Site and Community Portal. The Community Site is designed to bring together large groups of people around a shared topic or interest, whereas the Community Portal is used at the root of a site collection to provide a directory of Community Sites. If your organization uses communities, a link is provided from the Sites hub to the Community Portal. You can only have one Community Portal per SharePoint farm. For more information on communities, go to *technet.microsoft.com/en-us/library/jj219805.aspx*.

The SkyDrive hub

When you click SkyDrive in the global navigation bar, the All view of the My Sites document library titled My Documents displays, as shown in Figure 4-12. This document library is where users can store, share, and sync their personal files.
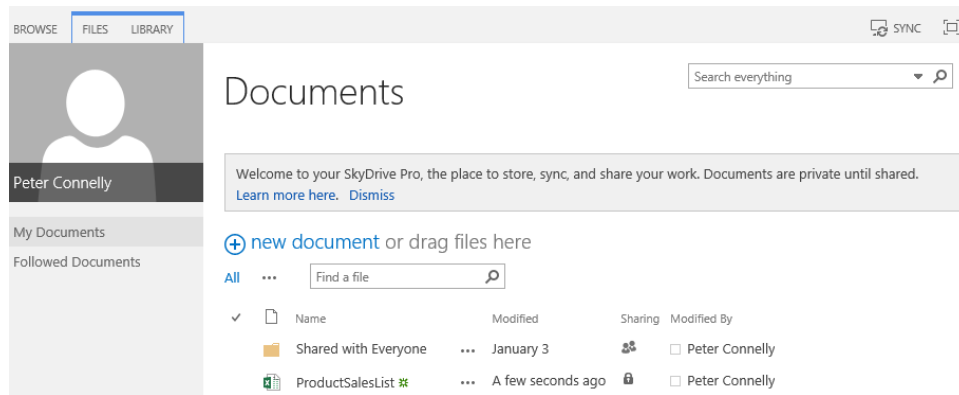
FIGURE 4-12 The SkyDrive hub is where you can store private and shared personal files.

By default any files uploaded to the SkyDrive hub are private, which is denoted by a padlock icon in the Sharing column. A folder named, Shared With Everyone, is provided in the Documents library, which can be seen by everyone. If you want to change the share permissions, click the people icon in the Sharing column to display the Shared With dialog box, as shown in Figure 4-13.
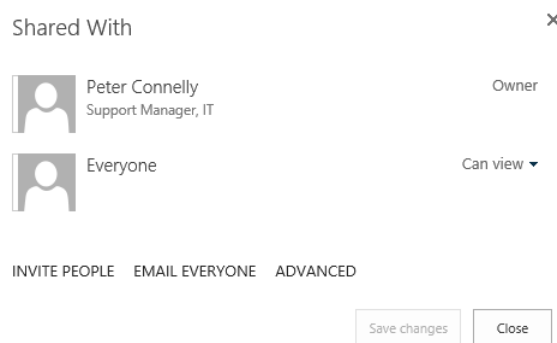
FIGURE 4-13 Use the Shared With dialog box to invite people, send everyone an email, or to change the permissions of people with whom you already share your files.

The other link on the SkyDrive hub Quick Launch is Followed Documents. When you click Followed Documents, the Followed Contents view (*FollowedContent.aspx*) page of the Social list on the user's My Site displays, as shown in Figure 4-14.
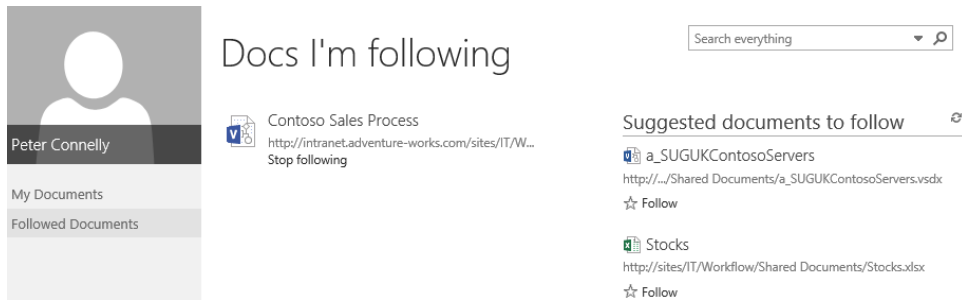
FIGURE 4-14 In the Followed Documents view of the Social list, you can find documents that you are following and suggested documents to follow.

The Followed Documents page contains two Web Parts that the Sites view of the Social list contains: an XsltListViewWebPart of the Social app (list) that displays Followed Document content type items, and ProjectSearchBrowseWebPart.

My Sites

You can visit your My Site by clicking Newsfeed or by clicking the down-arrow to the right of your name in the global navigation and then clicking About Me to display the About Me page (*person. aspx*), as shown in Figure 4-15. If you click SkyDrive or Sites, you can click the photo or name in the Quick Launch to display the About Me page.
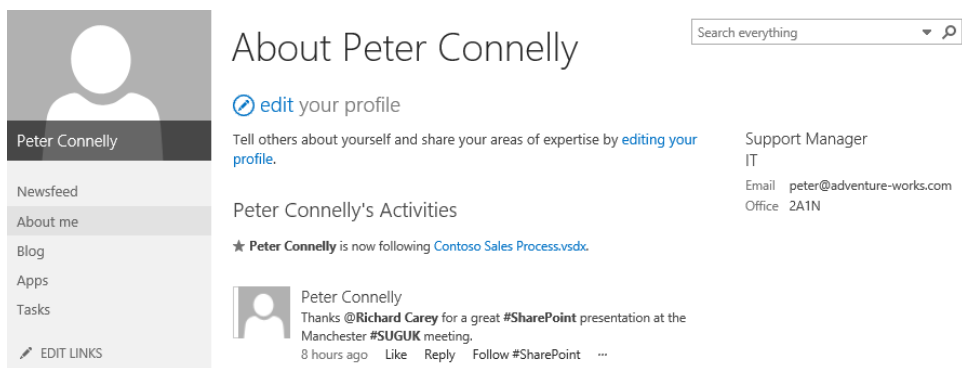
FIGURE 4-15 Use the About Me page to edit your profile and see your most recent conversations and social activities.

The About Me page, contains the following Web Parts:

■ **AskMeAboutWebPart**   This shows a list of keywords that others can ask questions on.

■ **PublishedFeedWebPart**   This Web Part displays a user's most recent conversations and activities.

- **MySitePersonalSiteUpgradeOnNavigationWebPart** This Web Part was also included on the *Newsfeed.aspx* page described earlier in this chapter.

- **ProfileInfoWebPart** This shows basic profile information for the user.

- **MySharedContext** This Web Part shows what is in common between the visitor to the About Me page and the user.

- **ProfileManages** This shows the organization and reporting hierarchy of the user.

After you are on your My Site, you can use the links on the Quick Launch to create or navigate to your blog subsite and track your tasks by using the My Tasks page.

> **Note** The three Newsfeeds Web Parts, MicroFeedWebPart, PublishedWebPart, and SiteFeedWebPart, replace the functionality provided by the SharePoint 2010 Recent Activities Web Part. These three Web Parts support multithreaded conversations and dynamic feed retrieval. When they execute, they produce HTML that is used by JavaScript to retrieve information asynchronously.

The My Tasks page

The My Tasks page includes your personal tasks as well as tasks assigned to you in SharePoint, Exchange, and Project Server. All Tasks displayed in My Tasks can be connected to Microsoft Outlook, as you can with a SharePoint Tasks app. However, this does have performance implications; thus, the use of the Outlook connector with My Tasks should be closely monitored. To set up the task management feature as well as the Search and User Profile service applications, there must be a Work Management service application. To aggregate tasks from Exchange and Project servers, additional tasks must be completed as described on the Microsoft TechNet site at *technet.microsoft.com/en-us/library/jj554516(office.15).aspx*.

The My Tasks functionality is in fact a number of pages stored in the root of your My Site. You can view each page by clicking the links in the My Tasks section. The link names and their respective page names are as follows:

- **Important And Upcoming** *Highlights.aspx*, as shown in Figure 4-16.

- **Active** *AllTasks.aspx*.

- **Completed** *CompleteTasks.aspx*.

- **Recently Added** *RecentlyAssigned.aspx*. You can choose this link from the Additional Options menu.
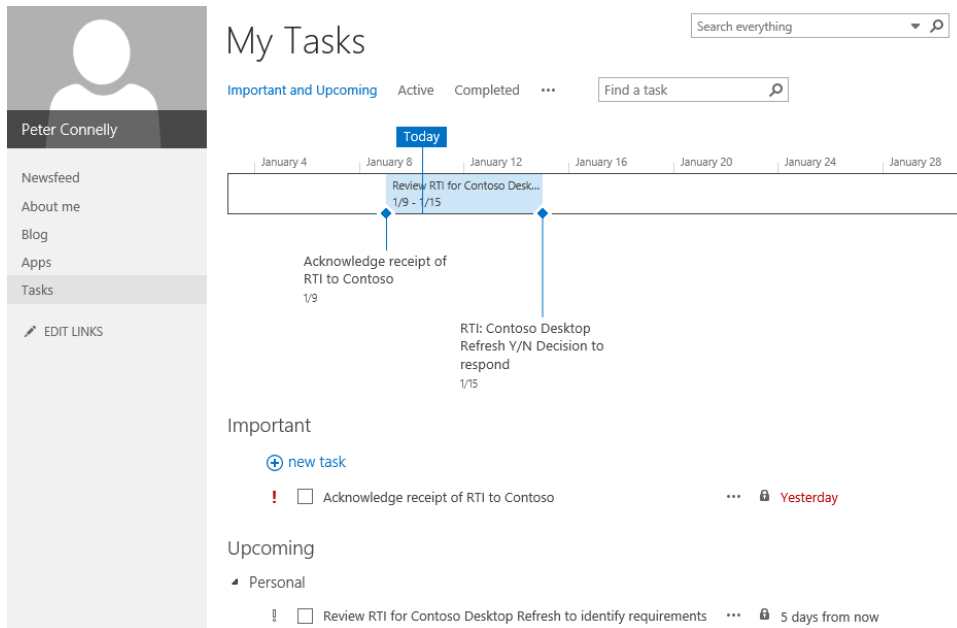
FIGURE 4-16 On the My Tasks page, you can view your personal tasks.

Apps

When you click Apps on the Quick Launch, the Site Contents page is diplayed, which makes it possible for the user to create other apps and subsites. Users can also use the Site Contents page to navigate to the following three apps:

- Microsoft Feed, which is used to display some of the content on the Newsfeed hub.

- Social, which contains the two views used on the Sites hub and SkyDrive hub.

- Documents, which is the SkyDrive hub.

There are also a number of hidden lists.

My Site storage

The About Me page is stored in the My Site Host site collection content database. The Profile pictures and any pictures posted in a user's microblog are stored in the User Photos library on the My Site Host site; therefore, if a quota is placed on the My Site Host site collection that is insufficient for the number of users in your organization, users will not be able create My Sites, add profile pictures, or include pictures on their newsfeed. When a user modifies their profile properties, they are stored in the Profile database.

The quota applied by default to each personal site collection is 100 MB. If a user uploads many files into his Documents folder (SkyDrive hub), microblog, or posts to their blog subsite excessively and reaches that quota, they will not be able to post or complete any tasks that result in a write to the content database. In Office 365, each user receives a quota of 7 GB for personal sites.

Planning for social computing

As with any ESN technology, the success of social computing within an organization is not dependent on the installation of one or more products. You should not install SharePoint Server 2013, enable all the social computing features, and expect them to be adopted by users. "Technology is only a smaller portion of the answer," said by many consultants, "Sometimes as little as 10 percent." For any ESN project, you will need to spend more time and effort on people and the way they work than the products that they use.

Nearly every company and every person in a company will have a different idea of what to expect out of social computing. When you begin to deploy social computing in your organization, start with a vision. Take your time as to discover what exactly your organization wants to accomplish: to what business process are you attempting to add social capabilities, and try to figure out where you will get the most value. This will drive your strategy, which will usually entail some measurable goals so that you can prove to the business that it has achieved some return on its investment.

Enterprise social computing is different from consumer social computing—you should not try to replicate exactly the Twitter or Facebook experience in the organization. The aim of enterprise social computing is to find a way of giving users more information in the areas where they need it and more tools to make their jobs easier. It's really about providing the means for users to be more productive.

Installation lifecycle

Another aspect to take into consideration when you plan your implementation is that at the Share-Point Conference 2012, Microsoft announced the move away from major releases of SharePoint every two and a half to three years. The idea is to have a more agile approach and to push out functional changes more quickly on a recurring basis. Over the past two releases SharePoint has incorporated infrastructure changes that support such a model; therefore, any new functionally will not need a major upgrade as the core infrastructure will remain unchanged. However, there will be times when key components will be switched out; for example, in SharePoint 2013, search is an example of a component that has been drastically re-engineered. With the acquisition of Yammer, social computing might be the next component that will have a major step change.

Many organizations expect a new installation on new hardware every three years and plan their deployments and finances around a three-year release model. Now, with this agile approach to releasing new functionality in SharePoint, you might need to change your approach to implementing SharePoint projects to ensure that you build a durable solution that can accommodate rolling releases. This increases the importance of appropriate planning and governance.

If you are migrating from SharePoint Server 2010 to SharePoint Server 2013, you might consider a module approach to your SharePoint implementation, where multiple connected SharePoint farms are deployed, where each farm hosts specific functionally. The emphasis is away from one SharePoint farm, which you must ensure is of the right size, to the subsequent monitoring of performance and capacity of that farm as well as completing other daily operational tasks to ensure it continues to meet your needs. In a connected model, one or more of the farms could be managed by a third party, thereby making it possible for your organization to concentrate on taking advantage of the features and building solutions to meet business needs.

Social computing might be the trigger to consider going to a connected model, whereas previously, you only installed one farm. One farm could host your organization's My Sites and collaboration sites on SharePoint 2013; the rest of the farms could still be using SharePoint Server 2010. The farm that hosted your My Sites could be SharePoint Online, which is often referred to as a hybrid model. The advantage of using SharePoint Online as compared to other third-party hosting companies is the Active Directory synchronization capabilities of Office 365 with on-premise Active Directory domains.

Related SharePoint components

To take advantage of the full social computing functionality, you must deploy the following:

- Search is a major dependency for social computing within SharePoint Server 2013. It is used for security trimming, for returning social activities, and for improving the ranking. Before deploying any other components you must install Search and verify that it is working correctly.

- MMS, because this is used for #Tags and interests.

- You will need a number of Web Applications. The number you need can be reduced with the preference to use Host Named Site Collections (HNSC), which were discussed in Chapter 1, "Architectural Enhancements"; however, it is still best to separate My Sites site collections (and the My Site Host site collection) in their own Web Application from the Web Application(s) for other site collections.

- A User Profile service application. In SharePoint Server 2013 the User Profile process is still based on a User Profile service application, and because the service application infrastructure has not changed in SharePoint 2013, creating a User Profile service application has not changed.

Optional services could include the Business Connectivity Services (BCS) as well as the supporting infrastructure to incorporate properties from the authoritative identity management source.

> **Note** You can find planning worksheets to assist in the planning of user profiles or the planning and configuring of profile synchronization at *www.microsoft.com/en-us/download/search.aspx?q=sharepoint+2013+profile+worksheets*.

Identity management

Undoubtedly, any social computing project will entail internal politics, especially as nearly all the social computing features within SharePoint Server take advantage of User Profiles in some way. Therefore, your organization's strategy to Identity Management (IdM) is important, and it will become more important as the breadth of social features in SharePoint Server grows.

Business decisions must be made as to what makes up a individual's persona, where the profile properties are to be obtained, which properties are to be exposed, and who will be able to see them, as well as taking into consideration privacy policies, regional regulations, and so on.

Although Active Directory (AD) plays a major role in your SharePoint installation, it might not be the authoritative source for identity and you will need to discover or get agreement as to where the authoritative source is. All the identity information might not reside in one location. Wherever you are going to get the properties, they need to be up to date and fresh, and there needs to be a business process backup by technology that keeps them in that state. Properties in AD can be augmented with properties from other systems by using the BCS.

The User Profile synchronization process

When SharePoint 2010 was first released, there were problems starting the User Profile synchronization process. Now, the results of a monumental effort—implemented in stages through cumulative updates to SharePoint 2010—form the basis for the synchronization process in SharePoint 2013. The User Profile service application in SharePoint Server 2013 uses the same build of Microsoft Forefront Identity Manager (FIM) and Microsoft Identity Manager Synchronization Service (FIMSS), 4.0.2450.47 (see Figure 4-17) that first appeared in the SharePoint Server 2010 February 2012 cumulative update (CU). The locations of the files for these two services are:

- FIM (*Microsoft.ResourceManagement.Service.exe*):

  %ProgramFiles%\Microsoft Office Servers\15.0\Service

- FIMSS (*miiserver.exe*):

  %ProgramFiles%\Microsoft Office Servers\15.0\Synchronization Service\Bin
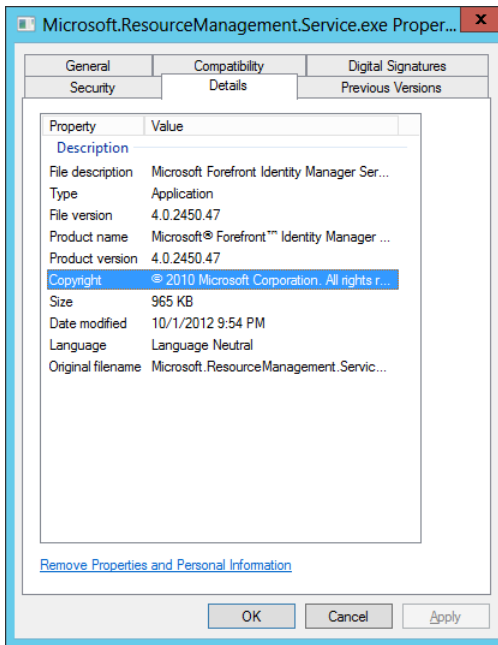
FIGURE 4-17 The details of the FIM Windows service.

In SharePoint Server 2013, you can see several optimizations that were already added in Share-Point 2010, such as the following:

- The addition of indexes to certain user properties that eliminate full table scans

- Importing data from the BDC in batches

- Removing unused provisioning steps

- Cleaning up unused historical data

- Moving resolution of some objects out of SharePoint and into the sync system

Profile synchronization options

As in SharePoint Server 2010, SharePoint Server 2013 has a two-way (read and write) AD synchronization process implemented via FIM; however, new with SharePoint Server 2013 is the introduction of an AD Import capability, also known as *AD Direct Mode*, as shown in Figure 4-18. Even with the optimization improvements to FIM, AD Import is faster.

Synchronization Options

To use the full-featured SharePoint Profile Synchronization option, select 'Use SharePoint Profile Synchronization'.

To use the light-weight Active Directory Import option (with some limitations - see documentation), select 'Use SharePoint Active Directory Import'.

To use an external identity manager for Profile Synchronization, select 'Enable External Identity Manager'.

Note: Enabling external identity manager will disable all Profile Synchronization options and status display in SharePoint.

- ● Use SharePoint Profile Synchronization
- ○ Use SharePoint Active Directory Import
- ○ Enable External Identity Manager

FIGURE 4-18 To use AD Import, select Use SharePoint Active Directory Import in the Synchronization Options section on the Configure Synchronization Settings page.

> **Note** The Configuration Synchronization Settings page can be used to switch between AD Import and FIM; however, the configurations (such as filters) for your synchronization connections will not be migrated.

This is similar to the AD import functionality of Microsoft Office SharePoint Server 2007. However, in SharePoint Server 2013, it is a new implementation of this functionality. AD import is a one-way (read-only) synchronization process by which SharePoint can import AD properties but cannot update those properties. The account used to read the properties from AD still needs the Replicating Directory Permissions on the domain from which you want to read the properties.

The AD Import runs as part of the User Profile Service instance; therefore, the User Profile Synchronization Service instance does not need to be started, and although the Sync database is created when the User Profile service application is created, it will not be used.

> **Note** You must configure synchronization settings and select AD Import before creating a synchronization connection. You can find an overview of directory synchronization at *technet.microsoft.com/en-us/library/gg188041.aspx.*

On the Add New Synchronization Connection page (see Figure 4-19), you can define one synchronization connection per AD domain; that is, if you have a forest with multiple domains, you need to create one synchronization connection for each domain in the forest.

Add new synchronization connection

Use this page to configure a connection to a directory service server to synchronize users.

* Indicates a required field

Connection Name

Adventure-works

Type

Active Directory Import ▼

Connection Settings

Fully Qualified Domain Name (e.g. contoso.com):

For Active Directory connections to work, this account must have directory sync rights.

Fully Qualified Domain Name (e.g. contoso.com):

adventure-works.com

Authentication Provider Type:

Windows Authentication ▼

Authentication Provider Instance:

▼

Account name: *

adventure\zSPups

Example: DOMAIN\user_name

Password: *

••••••••

Confirm password: *

••••••••

Port:

389

☐ Use SSL-secured connection
☐ Filter out disabled users

Filter in LDAP syntax for Active Directory Import.

FIGURE 4-19 You use the Add New Synchronization Connection page to enter the AD domain name and account that has Replicating Directory Permissions on the domain.

On the Add New Synchronization Connection page, you can select the Organizational Units (OUs) that contain the users and groups, and you can also specify a Lightweight Directory Access Protocol (LDAP) filter. After a full import is started, you will notice that a timer job is configured by default to complete incremental imports every five minutes. When you configure Profile Synchronization, the timer job is configured by default to complete an incremental import daily.

The AD Import functionality is constrained by the following limitations:

- You are tied to a single forest.

- Links across forests via the AD contact object are not processed.

- Mapping multivalue user profile properties to single-value profile properties, or vice versa, is not supported.

- Mapping to system SharePoint properties, that is, those that begin with SPS-, is not supported.

- Mapping two different AD attributes to the same SharePoint property is not supported.

- You cannot import additional user properties by using BCS.

Timer jobs and the role of distributed cache

Although the service application architecture has not changed, there are some aspects of the supporting platform architecture that have changed because of the new social computing features. Social computing in SharePoint 2013 consists of a number of activities that can be divided into two types:

- **User generated**   For example, microblogging activities, such as when a user creates, includes @mentions, likes, or replies to a post.

- **System generated**   These are activities that are mostly triggered by information stored in the Profile or personal site databases. For example, an activity is generated when it's a user's birthday or a user changes his job title. System-generated activities do not display on Site feeds. The User Profile Service Application - Activity Feed Job creates system-generated posts for the following events:

  - Following a tag

  - Tagging an item

  - Birthday celebration

  - Job title change

  - Workplace anniversary

  - Updates to Ask Me About

  - Posting on a note board

  After you configure My Sites, check that the User Profile Service Application - Activity Feed Job is enabled. By default, this time job is schedule to run every 10 minutes. There are a number of User Profile Service-related timer jobs, as shown in Figure 4-20.

FIGURE 4-20 User Profile Service-related timer jobs.

Both the user and system-generated activities are reported by a number of feeds such as the Web Parts on the Newsfeed and Sites hubs, which were described earlier in this chapter. The information for these feeds is stored and retrieved from the following:

■ Content databases

■ Distributed Cache, which was described in Chapter 1. Information is written to the Distributed Cache quickly and retrieved almost in real time. The Distributed Cache is divided into several caches, the two that are related to social computing are as follows:

• **Feeds Cache (DistributedActivityFeedCache)** The Feeds Cache is where all the activity information is captured and displayed by Web Parts. This includes activities from personal sites and other sites; for example, where newsfeeds are used, such as on team sites, project sites, and community sites.

• **Last Modified Time Cache (DistributedActivityFeedLMTCache)** The Last Modified Time Cache is used to keep track of when something was written to the My Sites content databases and to the content database of other types of sites.

This is completely different from SharePoint Server 2010, wherein all the social tagging information was stored in the Social database. Multiple User Profile service applications in a farm can cause delays in notifications. This is especially true because you can only have one Social database per User Profile service application and it is recommended that you only have one User Profile Application service application in your farm. Now, in SharePoint Server 2013, whereas much of the social tagging is stored in content databases, social computing can scale much better.

It is also best if site feeds and communities are in the same farm as the web application that hosts the My Site Host and personal site collections; otherwise, notifications in the Newsfeed and Sites hubs will not occur. This might change with future updates. Also the My Site web application and the web application that contains the collaboration sites that use newsfeeds should use the same application pool account.

Privacy settings

Privacy settings can be configured at the User Profile service application level and by users on their My Site. So, when you are planning your social computing deployment, you need to decide whether everything is to be available to all users within your organization or whether to prevent others from seeing a user's information. Remember, many of the social features available in the latest versions of SharePoint depend on open privacy settings so that others in the organization to see profile information.

Note Users can overwrite the privacy settings at the User Profile service application level regarding activities and following people privacy settings.

User Profile Service Application settings You can modify the Privacy settings by using the SharePoint Central Administration website or by using Windows PowerShell. To display the Manage Policies page (see Figure 4-21), in the browser, on the Manage Profile Service page, in the People section, click Manage Policies.

The new settings in the Privacy Settings section are as follows:

- Following A Document Or Site On My Site

- Tagging An Item On My Site

- Workplace Anniversary On My Site

- Following A Tag On My Site

- Updating "Ask Me About" On My Site

- Liking Or Rating Something

- Participation In Communities

- Following A Person On My Site

- Posting On A Note Board On My Site

- Job Title Change On My Site

- Posting A New Blog Post

- Birthday Celebration On My Site

Manage Policies

Use this page to manage policies for User Profile Service Application. These settings will affect user profiles and My Sites.

Name	Policy	Default Visibility	User Overridable
Memberships			
SharePoint Site			
Distribution List			
Privacy Settings			
Following a Document or Site on My Site			
Tagging an Item on My Site			
Workplace anniversary on My Site			
Following a Tag on My Site			
Updating "Ask Me About" on My Site			
Liking or rating something			
Participation in communities			
Following a Person on My Site			
Posting on a note board on My Site			
Job Title Change on My Site			
Posting a new blog post			
Birthday Celebration on My Site			
People Settings			
People on My Site			
Auto-follow people from team			

FIGURE 4-21 Use the Manage Policies page to configure the Privacy Settings at the User Profile Service Application level.

The following are the new settings in the People Settings section:

- People On My Site

- Auto-Follow People From Team

- People Recommendations

On the Manage Policies page, by hovering over a policy, a down-arrow appears that you can click to display a menu with which you can edit the policy by displaying the Edit Policy page, as shown in Figure 4-22.

Edit Policy

Specify the policy you want applied to this item. Select the policy, default privacy setting, and whether or not the user can change the privacy setting for items of this type.

Policy Settings

You can specify the privacy policy, default privacy setting, and whether or not the user can change the privacy for this item.

Name:

Following a Document or Sit

Policy Setting:

Enabled ⌄

Default Privacy Setting:

Only Me ⌄

☑ User can override

[OK] [Cancel]

FIGURE 4-22 On the Edit Policy page, you can specify the privacy policy settings and whether or not the user can change the policy.

> **Note** The Default Privacy Settings for policies contain two settings: Only Me and Everyone. The three settings that were available in SharePoint Server 2010—My Manager, My Team, and My Colleagues—have been removed. By selecting Only Me, you are deactivating feed events.

The default setting for all the My Sites privacy settings is Only Me; that is, My Sites are private by default. However, on the Set Up My Sites page for the User Profile server application, you can select the Make My Sites Public checkbox (see Figure 4-23) to make public the people who are following information and activities.

Privacy Settings

Choose whether you want to make all users' My Sites public by default.

By default, a user's My Site is private. This means that each person's list of followers and who that person is following is not shared with anyone. Additionally, all activities (including new follow notifications, social tagging and rating of content, birthdays, job title changes, workplace anniversary, updating ask me about, posting on a note board, and new blog posts) will be private. Choosing this option will enable all of these activities by default for all users and override whatever policies are set within People and Privacy in the Manage Policies page.

☐ Make My Sites Public

FIGURE 4-23 On the Set Up My Sites page, you can choose to make all user's My Sites public by default.

When the Make My Sites Public check box is selected, this has precedence over the privacy settings on the Manage Policies page; that is, the user's list of followers, the user's list of people they are following, and all activities—including new follow notifications, social tagging and rating of content, birthdays, job title changes, workplace anniversary, updating Ask Me About, posting on a note board,

and new blog posts—will be public. For those privacy settings that cannot be managed by using the Manage Policies page, a message on that page informs you that "People on My Site" policy and all policies under "Privacy Settings" are ignored, as shown in Figure 4-24.

Manage Policies

Use this page to manage policies for User Profile Service Application. These settings will affect user profiles and My Sites.
The 'Make My Sites Public' feature is enabled. The 'People on My Site' policy and all policies under 'Privacy Settings' are being ignored.

Name	Policy	Default Visibility	User Overridable
Memberships			

FIGURE 4-24 A message on the Manage Policies pages displays when the Make My Sites Public option is enabled.

My Site privacy settings When a user first visits her My Site a privacy notification displays (see Figure 4-6, earlier in this chapter). If a user clicks Learn More, a new browser window opens and displays a SharePoint Help page that explains how she can update her privacy settings.

On the privacy notification, by accepting the default, Let's Get Social, the privacy settings are automatically updated to let others see and respond to site activities. To leave the privacy settings as set at the User Profile service application level, clear the check box before clicking OK.

For users to update their privacy settings, they should complete the following steps:

1. If they are on their My Site, on the Quick Launch, click About Me. Or, at the top of a SharePoint Site, under their name, click About Me.

   The user's profile page opens.

2. To display the Edit Details page, click Edit Your Profile.

3. To the right of Details, click the ellipsis to display additional options and then click Newsfeed Settings, as shown in Figure 4-25.
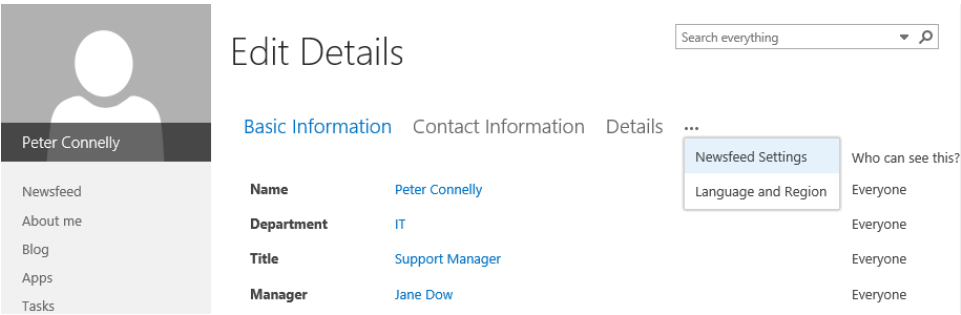
FIGURE 4-25 Users can click Newsfeed Setting to modify their privacy settings.

The Newsfeed Settings are displayed, as shown in Figure 4-26. On this page users can do the following:

- Pick what email notifications they want to receive.

- Allow others to see the people a user is following and the people following the user when they view the user's profile.

- Pick the activities that the user wants to make public.

Edit Details

Search everything

Basic Information   Contact Information   **Newsfeed Settings**   ...

Who can see this?

Followed #Tags

Stay up-to-date on topics that interest you by following #tags. Posts with these #tags will show up in your newsfeed.

Everyone

Email Notifications
☑ Someone has started following me
☑ Suggestions for people and keywords I might be interested in
☑ Someone has mentioned me
☑ Someone replied to a conversation that I started
☑ Someone replied to a conversation that I replied to
☑ Someone replied to my community discussion post

Pick what email notifications you want to get.

People I follow   ☑ Allow others to see the people you're following and the people following   Everyone
you when they view your profile.

Activities I want to   ☑ Share all of them ⓘ   Everyone
share in my   ☑ Following a person
newsfeed   ☑ Following a document or site
                                 ☑ Following a tag
                                 ☑ Tagging an item
                                 ☑ Birthday celebration
                                 ☑ Job title change
                                 ☑ Workplace anniversary
                                 ☑ Updating your "Ask Me About"
                                 ☑ Posting on a note board
                                 ☑ Liking or rating something
                                 ☑ New blog post
                                 ☑ Participation in communities

FIGURE 4-26 Use the Newsfeed Settings page to update your privacy settings to allow co-workers to see your activities in their newsfeeds.

My Site settings

Make My Sites Public is just one of the new settings on the My Site Settings page in the User Profile service application. Other settings with which you should familiarize yourself with during the planning stage are as follows:

- **Security Trimming Options**   When the Check All Links For Permission option is selected, users do not see links to activity feeds, ratings, social tags, and notes if they do not have permissions to see them. Site feeds and newsfeeds posted on sites will use the permission settings

on that site. Search is used for security trimming; therefore, the frequency of your incremental crawls will affect the freshness of the social activity links. This can delay the links from appearing on the My Site pages, such as the About Me page and the Newsfeed and Sites hubs. The other options in this section are: Check Only Specific Links For Permissions, and Show All Links Regardless Of Permission (see Figure 4-27). However, remember that if you decide to microblog to everyone, which is the default on the Newsfeed hub, the options in this section are irrelevant.

FIGURE 4-27 You can use the options in the Security Trimming Options section to decide whether to hide social activity from users who do not have permissions to see them.

■ **Newsfeed**   This section on the My Site Settings page contains two options, as shown in Figure 4-28. You can enable or disable activities on My Sites newsfeeds. Also, although SharePoint Server 2010 newsfeeds are deprecated, if you migrated from SharePoint Server 2010 and used newsfeeds in SharePoint Server 2010, you can incorporate those newsfeeds by selecting the Enable SharePoint 2010 Activity Migration check box. However, if you choose to incorporate them, the newsfeeds are not migrated and remain as they were in SharePoint 2010.

FIGURE 4-28 Use the Newsfeed section to enable SharePoint 2013 and SharePoint 2010 newsfeeds.

- **Email Notifications**   In this section, you can provide an email address that will be used as the sender's email when certain email notifications are sent. Such an email notification could be if someone mentions you in their microblog. The sender's email does not have to be a monitored email address. Also in this section, you can select whether you want users to receive emails for newsfeed activities, such as replies to conversations in which they've participated and conversations in which they have been mentioned. For these email notifications to be sent, the outgoing email settings for the farm must be configured.

- **My Site Cleanup**   In this section, you can decide when to enable access delegation and provide a secondary owner. When a user's profile has been deleted, that user's My Site is flagged for deletion after fourteen days. To prevent inadvertent data loss, if access delegation is enabled, access is granted to the user's manager so he can retrieve content from the former user's My Site before it is deleted. If the user has no manager or the user's manager cannot be determined, the name provided as the secondary owner is granted access to the former user's My Site.

Permissions for the User Profile Service Application

Using the SharePoint Central Administration website, you can control who can create My Sites and use other features provided by the User Profile Service Application, by clicking Manage User Permission, in the People section. On the Permissions For User Profile Service Application dialog box shown in Figure 4-29, in the Permissions For list, as in SharePoint Server 2010, there are three options; however, the text for each option explains clearly and reflects the new social computing features in SharePoint Server 2013.
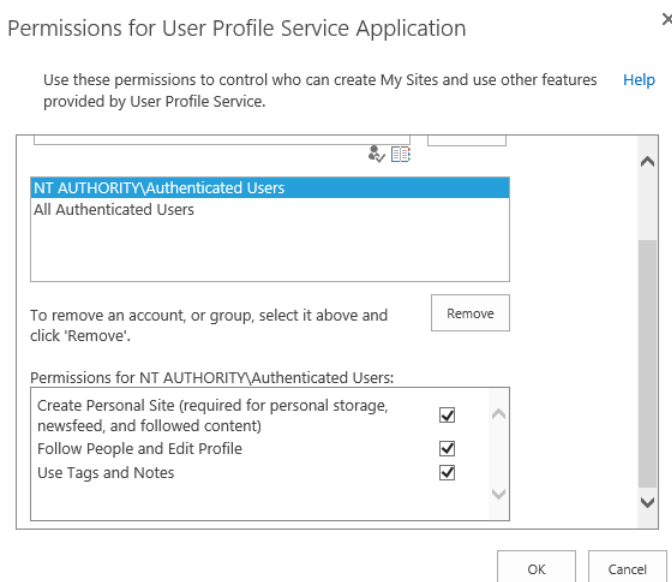
FIGURE 4-29 The Permissions for User Profile Service Application dialog box.

Yammer integration

Yammer's strength has traditionally been in stand-alone, cloud-based, social networking. Now, with its acquisition by Microsoft, Yammer can be used for stand-alone social computing as well as an aggregator of all social communications a user might have in an organization, such as integrating feeds of external cloud-based activity along with information from existing business application (for example, ERP and CRM).

Currently, there is a kind of a convergence of social computing between SharePoint 2013 and Yammer. However, full integration of the two products is not there at the moment. Therefore, there are similar social offerings within both products. For example, both SharePoint Server 2013 and Yammer have microblogging, and both allow you to follow objects, such as documents.

You can integrate Yammer with SharePoint's enterprise collaboration capabilities by using Yammer Web Parts. With these Web Parts, users can add a Yammer feed to a SharePoint page, view and move between Yammer feeds, and post messages and links.

In the future, you should expect to see deep integration of Yammer into SharePoint, Microsoft Dynamics, and other Microsoft products such as Office 365 and Skype; especially as Yammer announced at the SharePoint Conference 2012 that it is adopting the open graph protocol that was used in Facebook. Using this protocol, developers can create relationships between objects that the new Yammer Web Parts use. Notifications of activities that occur in SharePoint, such as uploading a document, will be able to be sent into Yammer. Similarly, links to files attached to Yammer posts will be provided as a link in SharePoint; however, much of the movement of data between Yammer and SharePoint is manual at the moment.

Going forward, it appears that both Yammer and SharePoint are going to be separate products; Yammer will still be cloud-based and aimed at organizations, where each organization has its own home Yammer network using its own email address. There is also now the ability to join organization network with external networks. At the same time, Yammer has been putting a special effort on simplifying the way its software can be made into components and meshed with third-party business applications.

The Yammer's Business edition is to be eliminated and the price for the Enterprise edition will be reduced from $15 to $3 per user, per month. In addition, Microsoft will bundle Yammer Enterprise with SharePoint Online, the cloud-hosted version of the product, which can be bought on a stand-alone basis or as part of the broader Office 365 suite.

> **Note** You can find information about the new Yammer SKU plan and pricing at *sharepoint.microsoft.com/blog/Pages/BlogPost.aspx?pID=1049.*

Summary

Social computing is a big investment area in SharePoint Server 2013, which now offers Facebook-like and Twitter-like functionality. This chapter described the new social functionality, such as microblogging, the use of #Tags, and @mentions, with which users can mention other people. Users can follow people, content, documents, sites and tags.

We also explored the three hubs, Newsfeed, SkyDrive, and Sites, where social activities can be viewed in groups, such as following, likes, mentions, and activities. These hubs are accessed from the global navigation bar. Thus, social computing is available from any site, even though the hubs are hosted either in the My Site Host site or a user's personal site. However, site feeds can be added to collaboration sites and the new community sites.

Planning is critical to any social computing project, regardless of the technologies that will be used. The organization's strategy with regard to IdM is important, and it will become more important as the breadth of social features in SharePoint Server grows.

The chapter then finished by briefly looking at the integration of Yammer with SharePoint.

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