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with Jakob Gottlieb Svendsen

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# System Center 2012 Service Manager

## UNLEASHED

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# System Center 2012 Service Manager

**UNLEASHED**



800 East 96th Street, Indianapolis, Indiana 46240 USA

## System Center 2012 Service Manager Unleashed

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# Dedication

*In memory of Jack Meltzer, who was always a guiding light.*

*Dad, you are deeply missed. Rest in peace.*

# Acknowledgments

Writing a book is an all-encompassing and time-consuming project, and this book certainly meets that description. The authors and contributors would like to offer their sincere appreciation to all those who helped with *System Center 2012 Service Manager Unleashed*. This includes ClearPointe Technology for dedicating lab resources, John Joyner for his assistance with the lab, Ranganathan Srikanth, Anshuman Nangia, and Anders Ravnholt of Microsoft, Raymond Chou, Nate Lasnoski, and Pete Zerger.

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# We Want to Hear from You!

As the reader of this book, *you* are our most important critic and commentator. We value your opinion and want to know what we're doing right, what we could do better, what areas you'd like to see us publish in, and any other words of wisdom you're willing to pass our way.

We welcome your comments. You can email or write to let us know what you did or didn't like about this book—as well as what we can do to make our books better.

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# Foreword

Service Manager is a vision—an addition to System Center built to be “the most customizable and extensible product in the System Center suite.” The growth of this System Center component, its impact on customers, and third-party integration since its release, are astounding. This growth has driven the birth of a community that is deeply entrenched and passionate about Service Manager. They have been a catalyst for the solution, its growth, and the proprietors of Service Manager. Twitter, blogging, eBooks, online videos, and presentations have fed to form user groups and social champions that drive feedback directly to Microsoft.

Service Manager is a complex component with unique capabilities that drive adoption of processes, proven simply by you reading this book. Directions, best practices, and knowledge from MVPs, social leaders, and Microsoft are all scribed in the pages to follow. Each dedicated their time to grow the understanding and delivery of this versatile platform.

Service management is a critical component of today's cloud, and the clouds of the future for private and hybrid scenarios. The cloud's automation is the key component for consumers of technology, from small to the largest enterprise. Service Manager is the glue of these vast systems, providing configuration, incident, change, and problem management. Integration with the entire System Center suite enables you to obtain a more flexible workflow engine with Orchestrator, Operations Manager, and Configuration Manager to catalog your assets, track requests, route alerting, automated resolution and tasks, and broadens capabilities from simple service request fulfillment to connecting complex processes in public clouds such as Windows Azure or other service providers.

The focus of this book is to help you, the IT professional, use this platform to be plugged into the process and armed with getting your Service Manager implementation underway. Before getting started with Service Manager's platform, a key thing to remember is it's not just about this software. The fact is, it's about service management, understanding the services your organization provides, and how to measure. Are you are managing risk? Operating efficiently? How are costs impacting the business?

Kathleen Wilson, one of the contributors to this book, said it best: “Service Manager requires you to understand your process and how people in IT interact with each other; just because you can customize and script it does not mean it's useful. Service Manager is about people and process first.”

Take the time to realize you don't just install Service Manager because you own it, but to transform your organization; giving it the visibility, integration, and extensible platform to be successful.

The coauthors and contributors to this book will guide you through the key components you need to be successful. They have been awarded our most esteemed recognitions for their contributions. We leave you in the best hands as you take this journey forward.

See you out there!

*Christian Booth, former Sr. Program Manager: Windows Server / System Center and Global Program Lead, MVP System Center: Cloud and Datacenter, Microsoft Corporation*

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# Introduction

System Center 2012 Service Manager builds on Microsoft's Service Manager 2010 release, adding enhanced authoring capabilities, release management, service request fulfillment, chargeback, a new self-service portal, and integration with System Center Orchestrator for increased automation capabilities. Service Manager's level of integration with the Information Technology Infrastructure Library (ITIL) and Microsoft Operations Framework (MOF) is unique among the System Center components.

Service Manager provides built-in processes based on industry best practices and is a departure from other System Center components in that it is not fundamentally a technology management tool, but a work management tool. To make the most of Service Manager requires understanding the work it is intended to manage: the work associated with managing Information Technology (IT) services. Service Manager is also infinitely customizable. Its essence is a customizable platform with solutions on top.

Service Manager is unique for other reasons—the fact that it touches so many different types of individuals in an organization, and because of its high level of integration with other System Center components through connectors and its centralized data warehouse. By unifying knowledge across System Center, Service Manager helps IT align to business needs while lowering time to resolution.

## A Toolset That Delivers IT as a Service

Service Manager 2012 provides a toolset to standardize service delivery; integrate people, process, and knowledge; and standardize data center processes.

Service Manager helps standardize service delivery by

- ▶ **Enabling self-service for application owners and end users:** Service Manager's service catalog provides application owners and end users access to standardized service offerings that span applications and infrastructure. Role-based policies enable application owners to make their requests, which are fulfilled automatically by Service Manager. Templates and workflows help you easily author and publish service offerings that align with your own business processes.
- ▶ **Enabling self-service requests for private cloud infrastructure:** You can provision and allocate infrastructure requests to internal IT business units based on their requirements, submitted through the self-service portal, and specify service level agreements (SLAs) with different tiers of availability for infrastructure resources. Costs for storage, network, and compute resources can be tracked and charged to internal cost centers.
- ▶ **Delivering self-service business intelligence:** Service Manager makes self-service reporting simple and easy to use through dashboards. Its data warehouse offers a comprehensive view of your enterprise by pulling data from multiple data sources, including other System Center components and Active Directory. Integration with

Microsoft Office helps enhance your ability to customize operational and business service reports.

Service Manager integrates people, processes, and knowledge across enterprise infrastructure and applications by

- ▶ **Enabling compliance and standardization:** The Service Manager configuration management database (CMDB) captures relationships across infrastructure and applications and facilitates continued compliance.
- ▶ **Standardizing data center processes:** Processes are standardized using workflows built around industry best practices.
- ▶ **Using connectors:** Connectors import data automatically from Active Directory and other System Center components. In addition, the Orchestrator connector supports fulfilling service requests through process automation capabilities such as runbook execution, while the Virtual Machine Manager connector imports library data including virtual machine and service templates into the CMDB, enabling users to request service offerings through the self-service portal.
- ▶ **Enabling management of your private cloud:** Service Manager tracks configuration items such as virtual machine templates, application service templates, virtual machines, physical hosts, and application services to help you manage a private cloud.

Service Manager standardizes data center processes with best practice workflows by

- ▶ **Providing process workflows built on industry best practices:** Workflows exist for incident management, problem management, service level agreement (SLA) management, and service request fulfillment. These help you deliver predictable operational SLAs for your data center application and infrastructure services.
- ▶ **Offering closed-loop change and release management:** This management is integrated into the service request fulfillment process, helping mitigate risks arising from high-impact changes that could span multiple application and infrastructure components.

## About This Book

*System Center 2012 Service Manager Unleashed* focuses on the core capabilities of Service Manager 2012: its relationship to MOF and ITIL, integration with other System Center components, design, planning, installation, how it works, and extensibilities. Because of the high level of integration with ITIL, a number of chapters focus on process.

This book is divided into six sections:

**Part I, “Service Manager Overview and Concepts,”** introduces service management and Service Manager, discussing its history, concepts, relationship to MOF and ITIL, and architectural design. These topics are discussed in Chapter 1, “Service Management Basics”; Chapter 2, “Service Manager History and Terminology”; Chapter 3, “MOF, ITIL, and System Center”; and Chapter 4, “Looking Inside System Center 2012 Service Manager.”

**Part II, “Planning and Installation,”** steps through design, planning, and installation. Chapter 5, “Planning and Designing System Center 2012 Service Manager,” discusses envisioning and planning for Service Manager 2012, delving into physical design topologies and including licensing considerations. Chapter 6, “Installing and Upgrading to System Center 2012 Service Manager,” steps through the installation process.

**Part III, “Service Manager Operations,”** focuses on Service Manager operations and processes in your environment. This includes Chapter 7, “Using Service Manager”; Chapter 8, “Working with Connectors”; Chapter 9, “Business Services”; Chapter 10, “Service Manager Service Catalog”; Chapter 11, “Incident Management”; Chapter 12, “Automation and Chargeback”; Chapter 13, “Problem Management”; Chapter 14, “Change Request and Configuration Management”; and Chapter 15, “Release Management.”

**Part IV, “Administering Service Manager,”** includes Chapter 16, “Managing Notifications”; Chapter 17, “Service Manager Security”; and Chapter 18, “Maintenance, Backup, and Recovery.” These chapters discuss those key functionalities and their use in Service Manager. Chapter 19, “Managing Service Manager Performance,” is a must-read for Service Manager administrators in shops of all sizes.

**Part V, “Beyond Service Manager,”** looks at going beyond the box. Service Manager is extremely customizable and extensible with no two installations using it the same way. This section includes Chapter 20, “Management Packs”; Chapter 21, “Data Warehouse and Reporting”; Chapter 22, “Customizing Service Manager”; and Chapter 23, “Advanced Customization Scenarios.” Chapter 24, “Using PowerShell,” explores the power of PowerShell and shows what can be done beyond the Service Manager console.

**Part VI, “Appendixes,”** includes three appendixes. Appendix A, “User Role Profiles Supplement,” includes tables on user role profile classes and relationship permissions and mapping user file profiles with ITIL/MOF roles. Appendix B, “Reference URLs,” incorporates useful references you can access for further information, and Appendix C, “Available Online,” is a guide to supplementary resources offered with the book that you can download from Pearson’s website at <http://www.informit.com/store/system-center-2012-service-manager-unleashed-9780133744194>.

## **Fast Track: A Quick Look at What’s New**

Many chapters in this book include a “Fast Track” section. Fast Track is an aid to Service Manager 2010 administrators who are familiar with *System Center Service Manager 2010 Unleashed*. This section provides a quick overview of what has changed from the previous version. Some features have major enhancements, some relatively few, and some are completely new. Chapters covering new features and topics such as design and installation do not include a Fast Track.

## Disclaimers and Fine Print

As always, there are several disclaimers. The information provided is probably outdated the moment the book goes to print. In addition, the moment Microsoft considers code development on any product complete, it begins working on a service pack or future release; as the authors continue to work with the product, it is likely yet another one or two wrinkles will be discovered! The authors and contributors of *System Center 2012 Service Manager Unleashed* have made every attempt to present information that is accurate and current as known at the time. Updates and corrections will be provided on the InformIT website at <http://www.informit.com/store/system-center-2012-service-manager-unleashed-9780133744194>.

Thank you for purchasing *System Center 2012 Service Manager Unleashed*. The authors hope it is worth your while.

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## CHAPTER 1

# Service Management Basics

**S**ystem Center 2012 Service Manager is an integrated platform for automating and adapting information technology service management (ITSM) best practices, such as those found in the Information Technology Infrastructure Library (ITIL) and Microsoft Operations Framework (MOF), to your organization's requirements. Service Manager provides built-in processes for Incident Management, Problem Management, Change Management, Service Request Fulfillment, Release Management, Knowledge Management, and Configuration Management. It includes a service catalog, dashboards, and reporting.

As an ITSM solution, Service Manager uses its configuration management database (CMDB) and process integration to help deliver IT as a service. Service Manager automatically connects knowledge and information from System Center Orchestrator, System Center Virtual Machine Manager (VMM), System Center Operations Manager, System Center Configuration Manager, and Active Directory (AD) Domain Services. Service Manager provides the following capabilities to deliver integration, efficiency, and business alignment for your Information Technology (IT) services:

- ▶ **Integrating process and knowledge across System Center:** Through its integration capabilities with other System Center components, Service Manager provides an integrated service management platform. This helps reduce downtime and improve the quality of services in the data center.
- ▶ **Providing an accurate and relevant knowledge base:** Knowledge base information resides in the CMDB; this contains product and user knowledge that enables IT analysts to quickly identify and resolve incidents. The knowledge base also assists end users, who can use the self-service portal (SSP)

## IN THIS CHAPTER

- ▶ Ten Reasons to Use Service Manager
- ▶ The Problem with Today's Systems
- ▶ Service Management Defined
- ▶ Evolution of the CMDB
- ▶ Strategies for Service Management
- ▶ Bridging the Service Management Gap
- ▶ Overview of Microsoft System Center
- ▶ The Value Proposition of Service Manager

to search for information to help solve issues. Organizations can create and manage their own knowledge base articles and make this information accessible to IT analysts and end users.

- ▶ **Lowering costs and improving responsiveness:** As IT organizations increasingly must become more efficient and do more with less, Service Manager's capabilities can help improve end user satisfaction. Service Manager improves end user satisfaction in two ways:
  - ▶ By enabling self-service for end users
  - ▶ By implementing ITIL process and standards such as Incident Management, Problem Management, and Knowledge Management

These increase the service team's responsiveness to end users and lower costs by facilitating better standards within IT.

- ▶ **Improving business alignment:** Service Manager helps your organization align with its business goals and adapt to new requirements through its configuration management, compliance, risk management, reporting, and analysis capabilities.
- ▶ **Delivering immediate value with built-in process management packs:** Included with Service Manager are core process management packs for Incident Management, Problem Management, Service Request Fulfillment, Change Management, Release Management, Configuration Management, and Knowledge Management.
- ▶ **Automating processes:** Service Manager helps automate repetitive, simple, and manual processes through integration with System Center Orchestrator. Examples of automation with Orchestrator include creating user accounts, resetting passwords, creating databases, provisioning virtual machines, and more.
- ▶ **Offering IT as a Service (ITaaS):** Through its service catalog, Service Manager can meet ITIL Service Request Fulfillment functionality. This enables IT departments to offer an effective and efficient means for handling service requests from end users. The service catalog consists of service offerings and request offerings published via the SSP.

This chapter introduces System Center Service Manager. Various abbreviations include SCSM, SM, and Service Manager; this book uses the nomenclature of Service Manager. Service Manager provides user-centric support, enables data center management efficiency, and enables you to align to your organization's business goals and adapt to ever-changing business requirements.

## Ten Reasons to Use Service Manager

Why should you use Service Manager 2012 in the first place? How does this make your daily life easier? Although this book covers the features and benefits of Service Manager in detail, it definitely helps to have some quick ideas to illustrate why Service Manager is worth a look!

Consider ten compelling reasons why you might want to use Service Manager:

1. Your support desk is overwhelmed with manually entering user requests...24/7 while end users are demanding self-service and cloud services.
2. You realize service desk management would be much simpler if you had visibility and information for all your systems on a single console.
3. You discover email is down when upper management calls the service desk. Although this mechanism is effective in getting your attention, it is stress inducing and not particularly proactive.
4. You would be more productive if you weren't dealing with user issues all day...and night. And during lunch and vacation.
5. The bulk of your department's budget pays for teams of contractors to manage user support and the service desk when self-service and automation could cut down on this and relieve IT to focus on more strategic tasks.
6. You're tired of going through each of your servers looking for reports you need on your client, server, physical, and virtual environments.
7. Your system admins are patching and updating production systems during business hours, often bringing down servers in the process.
8. By the time you update your user documentation, everything has changed and you have to start all over again!
9. You can't stay on top of adapting to your organization's business needs when you're not sure of your current capabilities.
10. You don't have the time to write down all the troubleshooting information that is in your brain, and your boss is concerned you might be hit by a truck (or want to take that vacation). This probably is not the best way to support end users.

While somewhat tongue-in-cheek, these topics represent real problems for many IT managers and support staff. If you are one of these individuals, you owe to it yourself to explore how you can leverage Service Manager to solve many of these common issues. These pain points are common to almost all users of Microsoft technologies to some degree, and Service Manager holds solutions for all of them.

However, perhaps the most important reason for using Service Manager is the peace of mind it can bring, knowing that you have complete visibility and control of your IT systems. The productivity this can bring to your organization is a tremendous benefit as well.

## The Problem with Today's Systems

With increasing operational requirements unaccompanied by linear growth in IT staffing levels, organizations must continually find ways to streamline administration through

tools and automation. Today's IT systems are prone to a number of problems from the perspective of service management, including

- ▶ System unavailability
- ▶ Configuration "shift and drift"
- ▶ System isolation
- ▶ Lack of historical information
- ▶ Not enough expertise
- ▶ Missing incidents and information
- ▶ Lack of process consistency
- ▶ Not meeting service level expectations

This list should not be surprising, as these problems manifest themselves in all IT shops with varying degrees of severity. In fact, Forrester Research estimates that 82% of larger shops are pursuing service management, and 67% plan to increase Windows management. The next sections look at the issues.

### Why Do Systems Go Down?

Let's start with examining reasons why systems go down. Figure 1.1 illustrates reasons for system outages, based on the authors' personal experiences and observations, and the following list describes some of these reasons.

#### Causes of System Outages

■ Software Errors   ■ User Errors   ■ Miscellaneous Errors

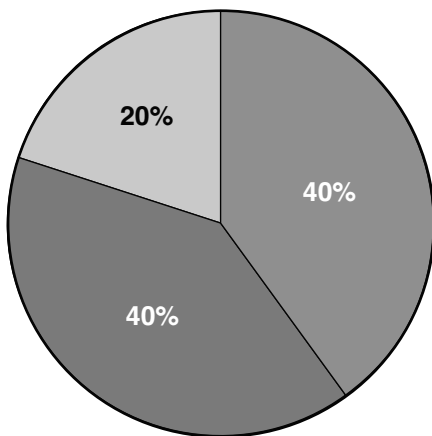


FIGURE 1.1 Causes of system outages.

- ▶ **Software errors:** Software is responsible for somewhat less than half the errors. These errors include software coding errors, software integration errors, data corruption, and such.
- ▶ **User errors:** End users and operators cause a little less than half the errors. This includes incorrectly configuring systems, failing to catch warning messages that turn into errors, accidents, unplugging the power cord, and so on.
- ▶ **Miscellaneous errors:** This last category is fairly small. Causes of problems include disk crashes, power outages, viruses, natural disasters, and so on.

As Figure 1.1 demonstrates, the vast majority of failures are due to software level errors and user errors. It is surprising to note that hardware failures account for only a small percentage of problems, which is a tribute to modern systems such as Redundant Array of Independent Disks (RAID), clustering, and other mechanisms deployed to provide server and application redundancy.

The numbers show that to reduce system downtime, which affects user satisfaction and productivity, you need to attack the software and user error components of the equation. That is where you get the most “bang for the buck.”

## Configuration “Shift and Drift”

Even IT organizations with well-defined and documented change management policies can have procedures that fall short of perfection. Unplanned and unwanted changes frequently find their way into production, sometimes as an unintended side effect of an approved, scheduled change.

You may be familiar with an old philosophical saying: If a tree falls in a forest and no one is around to hear it, does it make a sound?

Here's the change management equivalent: If a change is made on a system and no one is around to hear it, does identifying it make a difference?

The answer to this question absolutely is “yes”; every change to a system can potentially affect its functionality or security, or that system's adherence to corporate or regulatory compliance.

As an example, adding a feature to a web application component may affect the application binaries by potentially overwriting files or settings that were replaced with a critical security patch. Or perhaps the engineer implementing the change sees a setting he thinks is misconfigured and decides to just “fix” it while already working on the system. In an e-commerce scenario, where sensitive customer data is involved, this could have potentially devastating consequences, not to mention that troubleshooting something you don't know has changed is like looking for the proverbial needle in a haystack.

At the end of the day, your management platform must incorporate a strong element of baseline configuration monitoring and enforcement to ensure configuration standards are implemented and maintained with the required consistency.

## System Isolation

Microsoft Windows Server and the applications running on it expose a wealth of information with event logs, performance counters, and application-specific logs. However, this data is isolated and typically server-centric—making it difficult to determine what and where a problem really is. To get a handle on your systems, you need to take actions to prevent the situation shown in Figure 1.2, where you have multiple islands of information.

Places where you find isolated information include data and statistics stored in various databases, event logs, and performance counters. In addition, consultants, engineers, and subject matter experts have information locked up in their heads or written down on whiteboards and paper napkins. Other areas include undocumented changes, undocumented service requests, incidents that are similar but not shown as related to each other to help determine the root cause of problems, and decentralized asset information.

Each of these is as much an island of information as the statistics and data stored on any computer.

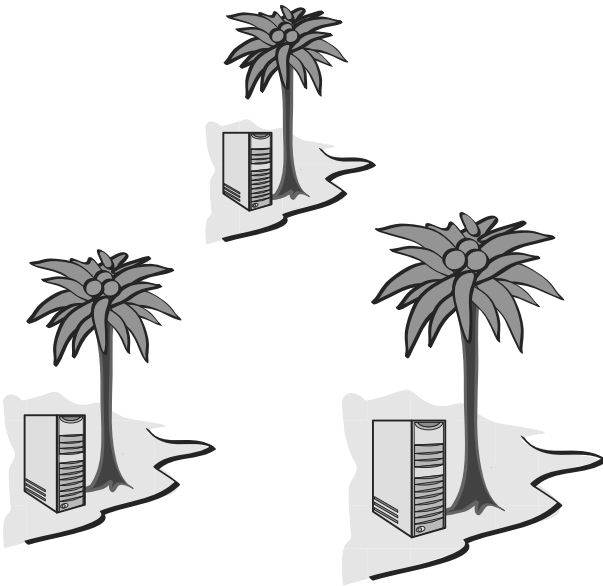


FIGURE 1.2 Multiple islands of information.

Although system information is captured in various ways, it is typically lost over time, and the information is not centralized or reviewed regularly. Most application information is also server-centric, typically stored on the server and specific to the server where that application resides. There is no built-in, system-wide, cross-system view of critical information.

Incidents, problems, service requests, and change requests are recurring events throughout IT. Some organizations have this data within separate systems, without a single point of visibility. When data is stored on separate systems, it is isolated, and comprehensive reporting becomes difficult. This is also true for servers, IIS websites, SQL instances, and other objects; data regarding these systems are not typically stored in a central location to enable good asset management inventory. As cloud scenarios continue to be adopted, tracking these assets becomes complex if they are not managed centrally. Islands of information, where data is stranded on any given island, make it difficult to get to needed information in a timely or effective manner. Not having that information can make managing user satisfaction a difficult endeavor.

System Center can help to alleviate these islands of information. Operations Manager can track monitoring information in a single place. You can bring Operations Manager alert data into Service Manager to populate incidents and problems as well as be a starting point for change requests. Monitored objects from Operations Manager and information from Configuration Manager can also be brought into Service Manager to populate the CMDB. Service Manager's CMDB and data warehouse have the ability to alleviate these islands of information and bring them into a single point for reporting.

## **Lack of Historical Information**

Sometimes you may capture information about problems, but are unable to look back in time to see whether this is an isolated instance or part of a recurring pattern. An incident can be a one-time blip or can indicate an underlying issue; not having a historical context makes it difficult to understand the significance of any particular incident. Consider the following example:

A company retains a consultant to determine why a database application has performance problems. To prove there is an issue, the in-house IT staff points out that users are complaining about performance but the memory and CPU on the database server are only 50% utilized. By itself, this does not say what the problem might be. It could be that memory and the CPU are normally 65% utilized and the problem is really a network utilization problem, which in turn is reducing the load on the other resources. The problem could be that the application is poorly written. A historical context could provide useful information.

As an expert, the consultant would develop a hypothesis and test it, which takes time and costs money. Rather than trying to solve a problem, many IT shops just throw more hardware at it—only to find that this does not necessarily improve performance. Utilizing historical records could show that system utilization actually dropped at the same time that users started complaining and the problem is actually elsewhere.

## **Lack of Expertise**

Do you lack the in-house expertise needed to support users calling the service desk? Is your documentation inadequate and you don't have the knowledge to keep it current? Do you pay an arm and a leg to have contractors manage user support and expectations?

If the expertise you need is not available for those areas needing attention, you can incur additional costs and even potential downtime. This can translate to loss of user productivity, system outages, and ultimately higher operational costs if emergency measures are required to resolve problems.

## Missing Incidents and Information

Sometimes problems are detected by what occurred elsewhere. The information reported to operations and change management systems can affect system availability and user satisfaction. If that information is not available to the service desk, it might as well be an isolated island of information.

One of the primary tasks of the service desk team is incident detection and recording. A complete service management solution must be able to capture information occurring throughout the data center, generating trouble tickets as appropriate, managing user expectations as necessary, and providing efficient and responsive support for end users. The CMDB must provide the information required for analysts to resolve issues quickly. Without the capability to incorporate information throughout the IT organization, the service desk is severely handicapped in the quality of support it can provide to its customers.

Reported incidents can also disappear from sight by not being assigned to an owner. A service management solution must be able to track information from the time it enters the system until the problem is resolved and the issue closed.

## Lack of Process Consistency

Many IT organizations are unorganized in terms of identifying and resolving problems. Using standard procedures and a methodology helps to minimize risk and solve issues faster.

A *methodology* is a framework of processes and procedures used by those who work in a discipline. You can look at a methodology as a structured process that defines the who, what, where, when, and why of your operations, and the procedures to use when defining problems, solutions, and courses of action.

When employing a standard set of processes, it is important to ensure that the framework adopted adheres to accepted industry standards or best practices. Employing a standard set of processes also considers business requirements, to ensure continuity between expectations and the services delivered by the IT organization. Consistent use of a repeatable and measurable set of practices allows organizations to quantify their progress more accurately to facilitate adjustment of processes as necessary to improve future results. The most effective IT organizations build an element of self-examination into their service management strategy to ensure processes can be incrementally improved or modified to meet the changing needs of the business.

With IT's continually increased role in running successful business operations, having a structured and standard way to define IT operations that are aligned to the needs of the business is critical to meet the expectations of business stakeholders. This alignment



results in improved business relationships, where business units engage IT as a partner in developing and delivering innovations to drive business results.

## Not Meeting Service Level Expectations

Customer satisfaction is all about perception. Customer satisfaction is not necessarily about objective quality of service; it is how your customer (the end user and the business) sees that quality. There will be times that your users see the service as much better than it is, and also times when that service is perceived as much worse than it is in reality—usually due to bad communication, or from isolated cases that have high visibility.

Keeping your end users satisfied is about providing excellent services, but it is also about managing their expectations about what excellent services actually are.

End User Satisfaction = Perception - Expectation

The expectation part of this equation is managed by your service level agreements and how well you meet them. The goal of service level management is ensuring that the agreed level of IT services are provided, and that any future services will be delivered as agreed upon. A service level agreement (SLA) is just a document; service level management—the process that creates that document—helps IT and the business you are supporting to understand each other.

If you have not established expectations, you will not be able to satisfy your end users as to the quality of the service IT is providing, and you will not be perceived as a valuable part of the business.

## What It's All About

It can be intimidating when you consider the fact that the problems described to this point could happen even in an ostensibly “managed” environment. However, these examples serve to illustrate that the very processes used for service management must themselves be reviewed periodically and updated, so they might accommodate changes in tools and technologies employed from the desktop to the data center. By not correlating data across systems, being aware of potential issues, maintaining a history of past performance and problems, and so on, IT shops open themselves up to putting out fires and fighting time bombs that could be prevented by using a more systematic approach to service management, which is described in the next section.

## Service Management Defined

IT is responsible for providing the technology resources required to support the objectives of the organization it serves. These comprise applications, file and print resources, communication and collaboration resources, networks, servers, desktops, and mobile devices. To those paying for and using these capabilities, these are far more significant than raw hardware and software components. IT consumers require that these resources be matched to organizational demands, predictable and available, stable and secure, reliable and cost effective; and they need someone to call for help when needed.

Delivering these capabilities in a stable, secure, predictable, and affordable manner requires much more than providing hardware and software. Those technology components are wrapped in planning, design, operating, and support practices that enable them to deliver exactly what consumers expect, and at a reasonable cost. Organizing IT as services is intended to optimize the value of IT—by providing an ongoing means of matching technology capability to functional, performance, and financial requirements.

IT service management is the concept of organizing and presenting information technology capabilities to business customers and users as a set of services. Think of it as a wrapper for the raw technology components, providing the ways and means to deliver technology as services. IT service management centers on the customer's perspective of IT's contribution to the business, an approach distinctly different from technology-centered approaches to IT management.

In practice, IT service management is implemented as a series of specialized processes that work together to deliver and support IT services. These processes are technology-agnostic and share strategies and objectives with other process improvement disciplines such as Total Quality Management (TQM), Six Sigma, and Capability Maturity Model Integration (CMMI). IT service management processes aim to enhance the efficiency and effectiveness of fundamental IT work, and emphasize alignment of that work with business needs for functionality, performance, and cost.

## **The Importance of Service Management to IT**

Service management has not always been a key discipline for IT. IT has historically focused on designing and delivering optimal technical solutions that did not necessarily align optimally with business needs. This context was narrow and inward looking. As IT became a more vital contributor to business results, there was greater emphasis on organizing it in ways that closely matched its solutions to business requirements. This broadened the context, as IT looked outward to position its capability within relevant business requirements.

This broad, business-oriented context is one of the chief reasons IT service management is important. Service management positions IT in a business context, featuring mechanisms to match what IT does to what the business demands, both at the time of design and on an ongoing basis. These mechanisms exist within various IT service management processes.

## **Key Concepts in IT Service Management**

To obtain a good grasp of IT service management fundamentals, you should understand several key IT service management concepts:

- ▶ IT service management focuses on managing IT as a set of business-facing IT services. This packages IT capability into services that ideally are easy for users to understand and consume, with straightforward measures of quality and cost.
- ▶ The IT organization is positioned as the service provider, responsible for delivering IT services in accordance with agreed standards for quality and cost.

- ▶ The business is the consumer, responsible for articulating requirements and funding IT services. It contains two constituents: customers who pay for the IT services, and users who utilize them in their work.

## Evolution of the CMDB

A configuration management database is a repository of information related to all the components of an information system. Configuration management itself focuses on establishing and maintaining consistency of a system or product's performance and its functional and physical attributes with its requirements, design, and operational information throughout its life cycle. A CMDB contains configuration item (CI) information and is used to understand CI relationships and track their configuration. Configuration management can assist in maintaining asset management data for configuration items.

The term CMDB stems from ITIL v2 (in ITIL v3 it is known as a configuration management system or CMS), where it represents the authorized configuration of the significant components of the IT environment. The CMDB is a fundamental component of the ITIL framework's configuration management process. CMDB implementations often involve federation, the inclusion of data into the CMDB from other sources. Information in a CMDB is typically used for planning, identification, control, monitoring, and verification.

The Service Manager CMDB is a database containing details of configuration items and details of the important relationships between those configuration items. These relationships capture, record, and provide output about the status, urgency, historical changes, and the impact of data between CIs.

Service Manager orchestrates and unifies knowledge across System Center by using its CMDB and process integration to connect knowledge and information from Orchestrator, Virtual Machine Manager, Operations Manager, Configuration Manager, and Active Directory Domain Services.

## Strategies for Service Management

Microsoft utilizes a multifaceted approach to IT service management. This strategy includes advancements in the following areas:

- ▶ Adoption of a model-based management strategy (a component of the Dynamic Systems Initiative, discussed in “Microsoft's Dynamic Systems Initiative,” the next section of this chapter) to implement synthetic transaction technology. Service Manager 2012 is intended to deliver a service-based set of scenarios, enabling you to define models of services to deliver to end users using a *service map*—a combination of Operation Manager's distributed application functionality with Service Manager business services.
- ▶ Using an Infrastructure Optimization (IO) model as a framework for aligning IT with business needs, and as a standard for expressing an organization's maturity in service management. The “Optimizing Your Infrastructure” section discusses the IO model

further. The IO model describes your IT infrastructure in terms of cost, security risk, and operational agility.

- ▶ Building complete management solutions on this infrastructure, either through making them available in the operating system or by using Service Manager, Operations Manager, Configuration Manager, and other System Center components.

## Microsoft's Dynamic Systems Initiative

A large percentage of IT departments' budgets and resources typically focuses on mundane maintenance tasks such as applying software patches or monitoring the health of a network, without leaving the staff with the time or energy to focus on more exhilarating (and more productive) strategic initiatives.

The Dynamic Systems Initiative, or DSI, is a Microsoft and industry strategy intended to enhance the Windows platform, delivering a coordinated set of solutions that simplify and automate how businesses design, deploy, and operate their distributed systems. Using DSI helps IT and developers create operationally aware platforms. By designing systems that are more manageable and automating operations, organizations can reduce costs and proactively address their priorities.

DSI is about building software that enables knowledge of an IT system to be created, modified, transferred, and operated on throughout the life cycle of that system. It is a commitment from Microsoft and its partners to help IT teams capture and use knowledge to design systems that are more manageable and to automate operations, which in turn reduces costs and gives organizations additional time to focus proactively on what is most important. By innovating across applications, development tools, the platform, and management solutions, DSI results in

- ▶ Increased productivity and reduced costs across all aspects of IT
- ▶ Increased responsiveness to changing business needs
- ▶ Reduced time and effort required to develop, deploy, and manage applications

Microsoft positions DSI as the connector of the entire system and service life cycles.

## Microsoft Product Integration

DSI focuses on automating data center operational jobs and reducing associated labor through self-managing systems. Following are several examples where Microsoft products and tools integrate with DSI:

- ▶ Operations Manager uses the application knowledge captured in management packs to simplify identifying issues and their root causes, facilitating resolution and restoring services or preventing potential outages, and providing intelligent management at the system level.

- ▶ Configuration Manager employs model-based configuration baseline templates in its Desired Configuration Management feature to automate identification of undesired shifts in system configurations.
- ▶ Service Manager uses model-based management packs. You can easily add new models describing your own configuration items or work items to track their life cycle. Each data model is stored in one or more management packs that make up the model.
- ▶ Visual Studio is a model-based development tool that leverages SML (Service Modeling Language), enabling operations managers and application architects to collaborate early in the development phase and ensure applications are modeled with operational requirements in mind.
- ▶ Windows Server Update Services (WSUS) enable greater and more efficient administrative control through modeling technology that enables downstream systems to construct accurate models representing their current state, available updates, and installed software.

#### SDM AND SML: WHAT'S THE DIFFERENCE?

Microsoft originally used the System Definition Model (SDM) as its standard schema with DSI. SDM was a proprietary specification put forward by Microsoft. The company later decided to implement SML, which is an industry-wide published specification used in heterogeneous environments. Using SML helps DSI adoption by incorporating a standard that Microsoft's partners can understand and apply across mixed platforms. Service Modeling Language is discussed later in the section "The Role of Service Modeling Language in IT Operations."

End-to-end automation could include update management, availability and performance monitoring, change and configuration management, and rich reporting services. Microsoft's System Center is a single offering of integrated management tools and solutions that help you manage your client devices, data centers, and private/public cloud environments. System Center provides the tools and knowledge to manage physical and virtual resources, services, applications, monitoring, data protection, configuration, and automation effectively within your IT infrastructure, thus helping to ease operations, reduce troubleshooting time, and improve planning capabilities.

#### The Importance of DSI

There are three architectural elements behind the DSI initiative:

- ▶ That developers have tools (such as Visual Studio) to design applications in a way that makes them easier for administrators to manage after those applications are in production
- ▶ That Microsoft products can be secured and updated in a uniform way
- ▶ That Microsoft server applications are optimized for management, to take advantage of System Center

DSI represents a departure from the traditional approach to systems management. DSI focuses on designing for operations from the application development stage, rather than a more customary operations perspective that concentrates on automating task-based processes. This strategy highlights the fact that Microsoft's Dynamic Systems Initiative is about building software that enables knowledge of an IT system to be created, modified, transferred, and used throughout the life cycle of a system. DSI's core principles of knowledge, models, and the life cycle are key in addressing the challenges of complexity and manageability faced by IT organizations. By capturing knowledge and incorporating health models, DSI can facilitate easier troubleshooting and maintenance, and thus lower TCO.

### **The Role of Service Modeling Language in IT Operations**

A key underlying component of DSI is the XML-based (eXtensible Markup Language) SML specification. SML is a standard developed by several leading information technology companies that defines a consistent way for infrastructure and application architects to define how applications, infrastructure, and services are modeled in a consistent way.

SML facilitates modeling systems from a development, deployment, and support perspective with modular, reusable building blocks that eliminate the need to reinvent the wheel when describing and defining a new service. This results in systems that are easier to develop, implement, manage, and maintain, resulting in reduced total cost ownership (TCO) to the organization. SML is a core technology that will continue to play a prominent role in future products developed to support the ongoing objectives of DSI.

#### **NOTE: SML RESOURCES ON THE WEB**

For more information on Service Modeling Language, view the latest draft of the SML standard at <http://www.w3.org/TR/sml/>. For additional technical information on SML from Microsoft, see <http://technet.microsoft.com/en-us/library/bb725986.aspx>.

## **MOF and ITIL**

Microsoft Operations Framework and the Information Technology Infrastructure Library are two prominent service management frameworks that define many concepts and practices central to Service Manager. These frameworks and their most relevant components are described in greater detail in Chapter 3, "MOF, ITIL, and System Center."

### **Introducing ITIL**

Originally developed in the 1980s by the British government, ITIL has become the de facto standard for IT service management. ITIL was eventually released publicly and is published as a set of books with content collaboratively developed by a consortium of industry experts. ITIL takes a life cycle approach to IT service management, providing technology-agnostic, descriptive guidance on IT service management processes and functions. ITIL has spawned an industry of consultancy and training services, and features a multilevel certification scheme for individual IT professionals.

**Introducing MOF**

MOF is Microsoft's adaptation of ITIL and extends ITIL's technology-neutral best practices with more prescriptive guidance, aimed at Microsoft-centered environments. Like ITIL, MOF takes a life cycle approach to IT service management and derives guidance from the real world experiences of Microsoft professionals. Unlike ITIL, MOF is at no charge, and it extends generic process guidance with management reviews, companion guides, and job aids. A single certification is available.

**COBIT: A Framework for IT Governance and Control**

Control Objectives for Information and related Technology (COBIT) is an IT governance framework and toolset developed by ISACA, the Information Systems Audit and Control Association. COBIT enables managers to bridge the gap between control requirements, technical issues, and business risks; it provides an end-to-end business view of the governance of enterprise IT that reflects the central role of information and technology in creating value for enterprises. COBIT was first released in 1996 and is now at version 5, released in 2011. Service Manager, which is the focal point in System Center for IT compliance, implements IT governance and compliance.

**Total Quality Management: TQM**

TQM's goal is to continuously improve the quality of products and processes. It functions on the premise that the quality of the products and processes is the responsibility of everyone involved with the creation or consumption of the products or services offered by the organization. TQM capitalizes on the involvement of management, workforce, suppliers, and even customers, to meet or exceed customer expectations.

**Six Sigma**

Six Sigma is a business management strategy, originally developed by Motorola, that seeks to identify and remove the causes of defects and errors in manufacturing and business processes. Six Sigma process improvement originated from Motorola's drive toward reducing defects by minimizing variation in processes through metrics measurement. Applications of the Six Sigma project execution methodology have since expanded to incorporate practices common in TQM and supply chain management; this includes customer satisfaction and developing closer supplier relationships.

**CMMI**

CMMI is a process improvement approach providing organizations with the essential elements of effective processes. It can be used to guide process improvement—across a project, a division, or an entire organization—thus helping to integrate traditionally separate organizational functions, set process improvement goals and priorities, provide guidance for a quality processes, and provide a point of reference for appraising current processes. Benefits you can realize from CMMI include

- ▶ Linking your organization's activities to your business objectives
- ▶ Increasing your visibility into your organization's activities, helping ensure your service or product meets the customer's expectations
- ▶ Learning from new areas of best practice, such as measurement and risk

## **Business Process Management**

Business process management (BPM) is a management approach focused on aligning all aspects of an organization with the wants and needs of clients. It is a holistic management approach, promoting business effectiveness and efficiency while striving for innovation, flexibility, and integration with technology. BPM attempts to improve processes continuously and can be considered a process optimization process. It is argued that BPM enables organizations to be more efficient, effective, and capable of change than with a functionally focused, traditional hierarchical management approach. BPM can help organizations gain higher customer satisfaction, product quality, delivery speed, and time-to-market speed.

## **Service Management Mastery: ISO/IEC 20000**

You can think of ITIL and ITSM as providing a framework for IT to rethink the ways in which it contributes to and aligns with the organization. ISO/IEC 20000, which is the first international standard for IT service management, institutionalizes these processes. ISO/IEC 20000 helps companies to align IT services and business strategy, and create a formal framework for continual service improvement, and provides benchmarks for comparison to best practices.

ISO/IEC 20000 was developed to reflect the best-practice guidance contained within ITIL. The standard also supports other IT service management frameworks and approaches, including MOF, COBIT, CMMI, and Six Sigma. ISO/IEC 20000 includes the design, transition, delivery, and improvement of services that fulfill service requirements and provide value for the customer and the service provider.

ISO/IEC 20000 provides organizational or corporate certification for organizations that effectively adopt and implement its code of practice.

## **Optimizing Your Infrastructure**

According to Microsoft, analysts estimate that more than 70% of the typical IT budget is spent on infrastructure—managing servers, operating systems, storage, and networking. Add to that the challenge of refreshing and managing desktop and mobile devices, and there's not much left over for anything else. Microsoft describes an Infrastructure Optimization model that categorizes the state of one's IT infrastructure, describing the impacts on cost, security risks, and the ability to respond to changes. Using the model shown in Figure 1.3, you can identify where your organization is and where you want to be:



- ▶ **Basic:** Reactionary, with much time spent fighting fires
- ▶ **Standardized:** Gaining control
- ▶ **Rationalized:** Enabling the business
- ▶ **Dynamic:** Being a strategic asset

Although most organizations are somewhere between the basic and standardized levels in this model, typically one would prefer to be a strategic asset rather than fighting fires. Once you know where you are in the model, you can use best practices from ITIL and guidance from MOF to develop a plan to progress to a higher level. The IO model describes the technologies and steps organizations can take to move forward, whereas MOF explains the people and processes required to improve that infrastructure. Similar to ITSM, the IO model is a combination of people, processes, and technology.

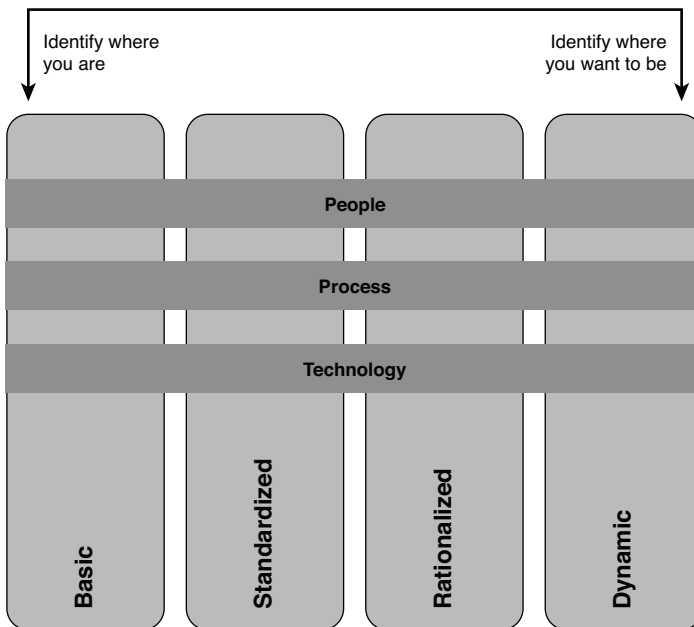


FIGURE 1.3 The Infrastructure Optimization model.

More information about Infrastructure Optimization is available at <http://www.microsoft.com/technet/infrastructure>.

**NOTE: ABOUT THE IO MODEL**

Not all IT shops will want or need to be dynamic. Some will choose, for all the right business reasons, to be less than dynamic! The IO model includes a three-part goal:

- ▶ Communicate that there are levels
- ▶ Target the desired levels
- ▶ Provide reference on how to get to the desired levels

Realize that infrastructure optimization can be by application or by function, rather than a single ranking for the entire IT department.

Items that factor into an IT organization's adoption of the IO model include cost, ability, and whether the organization fits into the business model as a cost center versus being an asset, along with a commitment to move from being reactive to proactive.

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**From Fighting Fires to Gaining Control**

At the Basic level, your infrastructure is hard to control and expensive to manage. Processes are manual, IT policies and standards are either nonexistent or not enforced, and you don't have the tools and resources (or time and energy) to determine the overall health of your applications and IT services. Not only are your desktop and server management costs out of control, but you are in reactive mode when it comes to security threats and user support. In addition, you tend to use manual rather than automated methods for applying software deployments and patches.

Does this sound familiar? If you can gain control of your environment, you may be more effective at work! Here are some steps to consider:

- ▶ Develop standards, policies, and controls.
- ▶ Alleviate security risks by developing a security approach throughout your IT organization.
- ▶ Adopt best practices, such as those found in ITIL, and operational guidance found in the MOF.
- ▶ Build IT to become a strategic asset.

If you can achieve operational nirvana, this will go a long way toward your job satisfaction and IT becoming a constructive part of your business.

**From Gaining Control to Enabling the Business**

A standardized infrastructure introduces control by using standards and policies to manage desktops and servers. These standards control how you introduce machines into your network. As an example, using Directory Services will manage resources, security policies, and access to resources. Shops at the Standardized level realize the value of basic standards and some policies, but still tend to be reactive. Although you now have a managed IT infrastructure and are inventorying your hardware and software assets and starting to manage licenses, your patches, software deployments, and desktop services are

not yet automated. Security-wise, the perimeter is now under control, although internal security may still be a bit loose. Service management becomes a recognized concept, and your organization is taking steps to implement it.

To move from a standardized state to the Rationalized level, you need to gain more control over your infrastructure and implement proactive policies and procedures. You might also begin to look at implementing service management. At this stage, IT can also move more toward becoming a business asset and ally, rather than a burden.

### **From Enabling the Business to Becoming a Strategic Asset**

At the Rationalized level, you have achieved firm control of desktop and service management costs. Processes and policies are in place and beginning to play a large role in supporting and expanding the business. Security is now proactive, and you are responding to threats and challenges in a rapid and controlled manner.

Using technologies such as lite-touch and zero-touch operating system deployment helps you to minimize costs, deployment time, and technical challenges for software rollouts. Because your inventory is now under control, you have minimized the number of images to manage, and desktop management is now largely automated. You also are purchasing only the software licenses and new computers the business requires, giving you a handle on costs. Security is now proactive with policies and control in place for desktops, servers, firewalls, and extranets. You have implemented service management in several areas and are taking steps to implement it more broadly across IT.

### **Mission Accomplished: IT as a Strategic Asset**

At the Dynamic level, your infrastructure is helping run the business efficiently and stay ahead of competitors. Your costs are now fully controlled. You have also achieved integration between users and data, desktops and servers, and the different departments and functions throughout your organization.

Your IT processes are automated and often incorporated into the technology itself, allowing IT to be aligned and managed according to business needs. New technology investments yield specific, rapid, and measurable business benefits. Measurement is good—it helps you justify the next round of investments!

Using self-provisioning software and quarantine-like systems to ensure patch management and compliance with security policies allows you to automate your processes, which in turn improves reliability, lowers costs, and increases your service levels. Service management is implemented for all critical services with service level agreements and operational reviews.

According to IDC research (October 2006), very few organizations achieve the Dynamic level of the Infrastructure Optimization model—due to the lack of availability of a single toolset from a single vendor to meet all requirements. Through execution on its vision in DSI, Microsoft aims to change this. To read more on this study, visit [http://download.microsoft.com/download/a/4/4/a4474b0c-57d8-41a2-afe6-32037fa93ea6/IDC\\_windesktop\\_IO\\_whitepaper.pdf](http://download.microsoft.com/download/a/4/4/a4474b0c-57d8-41a2-afe6-32037fa93ea6/IDC_windesktop_IO_whitepaper.pdf).

**TIP: MICROSOFT INFRASTRUCTURE OPTIMIZATION HELPS REDUCE COSTS**

The April 21, 2009, issue of *Biztech* magazine includes an article by Russell Smith about Microsoft's Infrastructure Optimization model. Russell makes the following points:

- ▶ While dynamic or fully automated systems that are strategic assets to a company sometimes seem like a far-off dream, infrastructure optimization models and products can help get you closer to making IT a valuable business asset.
- ▶ Microsoft's Infrastructure Optimization is based on Gartner's Infrastructure Maturity model and provides a simple structure to evaluate the efficiency of core IT services, business productivity, and application platforms.
- ▶ Though the ultimate goal is to make IT a business enabler across all three areas, you need to concentrate on standardizing core services: moving your organization from a basic infrastructure (in which most IT tasks are carried out manually) to a managed infrastructure with some automation and knowledge capture.

For additional information and the complete article, see [http://www.biztechmagazine.com/article.asp?item\\_id=569](http://www.biztechmagazine.com/article.asp?item_id=569).

## Bridging the Service Management Gap

System Center 2012 Service Manager is Microsoft's software tool for solving service management issues and is a key component in Microsoft's management strategy and System Center. Service Manager is a comprehensive service management solution that uses its CMDB to collect information not only related to incident management, problem management, change requests and configuration management, and release management, but to consolidate information from other System Center components including Operations Manager, Configuration Manager, and Virtual Machine Manager. As discussed at the beginning of this chapter, Service Manager now incorporates the following benefits:

- ▶ **Integrates processes and knowledge across System Center:** In terms of integration and knowledge for System Center, consider Service Manager, the CMDB, and its connectors, as the glue for System Center. Microsoft provides connectors for Active Directory, Exchange, Configuration Manager, Operations Manager, Virtual Machine Manager, and Orchestrator to bring data into the CMDB from these other System Center components. Once data from these connectors are in Service Manager, IT departments have the necessary information available to work with in one place. Other System Center components such as Data Protection Manager and some other non-System Center products can also have their data brought into Service Manager's CMDB using Orchestrator or CSV files.
- ▶ **Provides an accurate and relevant knowledge base:** Knowledge management in Service Manager utilizes an internal and external repository. The service desk team creates internal knowledge base articles; external knowledge base articles simply are web links to external resources such as knowledge base articles on the Internet or technical articles that can be used to solve a problem.

Knowledge-based articles can be linked to configuration items, incidents, problems, and change requests. Linking knowledge base articles to items in Service Manager

ensures that the service desk has accurate and relevant information to understand and solve problems. End users can search and view knowledge base articles within the self-service portal, enabling them to view solutions that can resolve their problems on their own before opening a new incident. Figure 1.4 shows an example of a knowledge base article and a configuration item that has been linked to the knowledge base article.

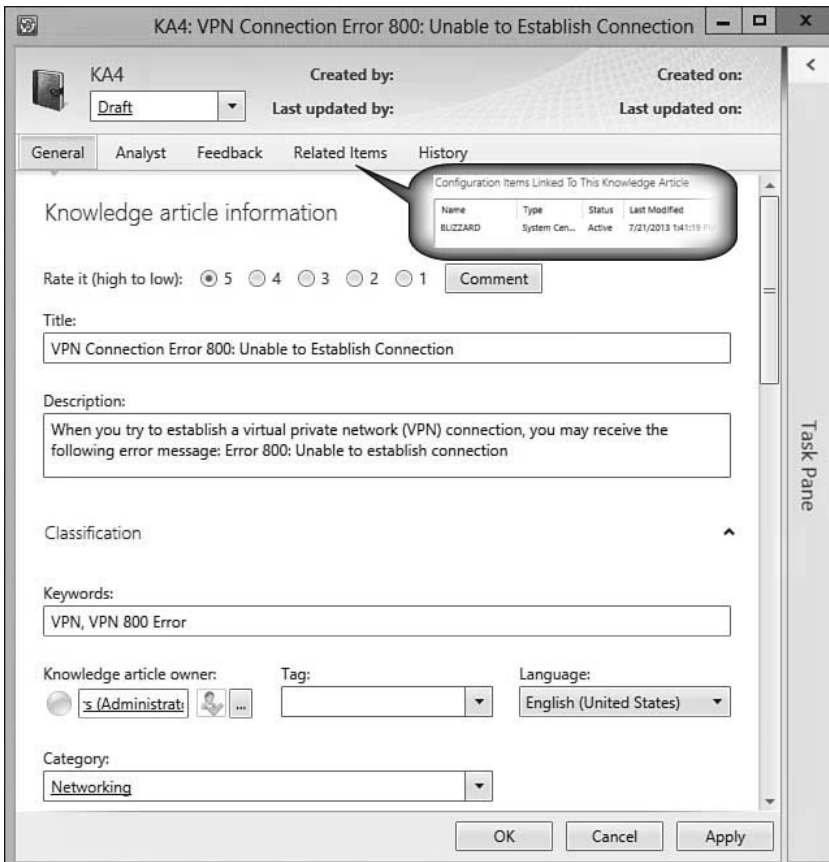


FIGURE 1.4 Knowledge base article in Service Manager.

- ▶ **Lowest costs and provides improved responsiveness:** Service Manager can help run IT services more efficiently, monitor responses, and meet metrics defined within its SLAs, leading to improved customer satisfaction. This can be accomplished using the features and functionality within Service Manager to accomplish the following:
  - ▶ Integrating with Operations Manager and Configuration Manager
  - ▶ Tracking all items and alerts that arise as configuration items and incidents

- ▶ Using templates, workflows, and escalations to route incidents to the correct teams immediately
- ▶ Improving time to resolution through knowledge management
- ▶ Reducing the risks of changes through change and release management

Ultimately, organizations will experience lower operational costs and improved service management responsiveness to end users.

- ▶ **Improves business alignment:** Adoption of ITIL and MOF frameworks, as part of a Service Manager implementation, help achieve better alignment of IT with the business objectives of the organization.
- ▶ **Delivers immediate value with built-in process management packs:** Service Manager's built-in management packs enable better control of the organization's processes for Incident Management, Problem Management, Change Management, Release Management, Knowledge Management, and Service Request Fulfillment.
- ▶ **Automates processes:** Service Manager workflows can be utilized to automate and adapt processes into MOF and ITIL frameworks. For advanced processes, Service Manager can be used to surface Orchestrator runbooks, automating those advanced processes and enabling self-service automation.
- ▶ **Enables IT as a Service:** Service Manager enables IT to be offered as a service within organizations. This is accomplished using a combination of request fulfillment, automation, and the service catalog. Utilizing Service Manager workflows and incorporating Orchestrator runbooks can automate many end user requests, change requests, or tasks that need to be completed to resolve an incident, freeing up IT staff to focus on more strategic needs.

## Delivering System Uptime

Service Manager is an end-to-end service management platform that helps IT departments reduce downtime by providing service management through ITIL and MOF processes. Consider this example: Operations Manager alerts are recorded in the CMDB as incidents and routed to the proper IT personnel to take action before the issues cause outages. These alerts are also stored in the data warehouse for further analytical and reporting use. Tracking Operations Manager alerts can also assist with identifying bottlenecks, performance issues, health trends, and resource needs, in turn enabling IT to use proactive rather than reactive Problem Management to ensure service level agreements and service availability are met.

## Addressing Configuration “Shift and Drift”

Service Manager's change management and configuration management functionality assist in addressing shift and drift through enforcing configuration and compliance requirements, utilizing the Change Management processes within Service Manager and detection of noncompliant configurations through the Configuration Manager connector.

## Consolidating Information

Service Manager consolidates information throughout System Center by pulling information into the CMDB. Data is moved into the data warehouse for long-term storage, available for analysis, dashboards, and reporting use. Information generated directly in Service Manager such as incidents, problems, changes, activities, and service requests are first stored in the CMDB and then moved to the data warehouse. Examples of information contained in the CMDB are users and printers from Active Directory, computers from Configuration Manager, alerts and objects from Operations Manager, and virtual servers from Virtual Machine Manager. Other types of information contained in the CMDB include business services, environments (production or development), computers, users, software, printers, software updates, and other objects. Figure 1.5 shows examples of configuration item types within Service Manager.

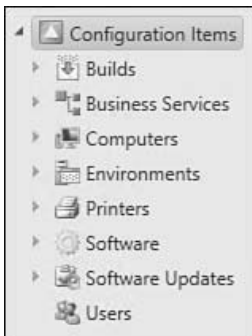


FIGURE 1.5 Configuration items within the CMDB.

## Providing Historical Information

The data warehouse in Service Manager serves as a resource for historical data, not only regarding activity in IT but also for configuration items. The data warehouse lets you view the information it contains quickly and efficiently, presenting that data in ways that make it easy to view, print, or publish. Service Manager also provides historical information through Change Management processes. Figure 1.6 shows an example of reports found in the Service Manager data warehouse by default. Notice there are different reporting categories—such as Change Management, Incident Management, and Configuration Management. These reports show information that is important for metrics and measuring IT service management performance. These reports are just the tip of the iceberg when it comes to the reporting, dashboard, and analytical capabilities found within Service Manager.

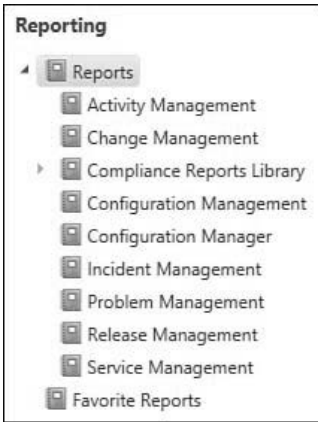


FIGURE 1.6 Reports in the Service Manager data warehouse.

An example of further analytical capability found within the data warehouse is the ability to analyze your service management data in Excel PowerPivot. The report in Figure 1.7 is an example of active versus resolved incidents, represented in a PivotChart made with Excel PowerPivot using a cube in the Service Manager data warehouse.

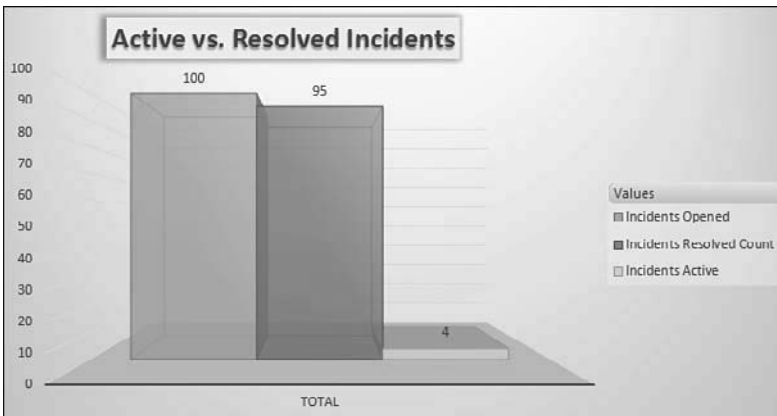


FIGURE 1.7 PivotChart in Excel from Service Manager data warehouse data.

## Delivering Expertise

Service Manager delivers expertise to your IT teams through the MOF and ITIL frameworks upon which it was built, helping IT teams to start using ITIL processes. Utilizing ITIL processes such as Incident Management presents a consistent way of handling incidents



that in turn helps improve end user satisfaction, incorporating Change Management improves tracking of changes within your environment and reduces risk, and using Knowledge Management helps document solutions to problems and enables you to resolve problems faster.

Utilizing Incident Management and Change Management helps processes be consistent, providing documentation even with personnel turnover. These help to lower your operational cost and reduce the time needed to find solutions to resolve issues. In addition, all incidents, change management information, and knowledge base articles are stored in the CMDB and the data warehouse for historical purposes.

### **Addressing Missing Incidents and Information**

All incidents, problems, and changes can be tracked in Service Manager. Data from other systems can be brought into Service Manager's CMDB through connectors and tracked as asset information. One example of information flowing from another system into Service Manager is System Center Operations Manager, which monitors your infrastructure and generates alerts. While Operations Manager can track and address these alerts, the effort to resolve those alerts is not tracked. Bringing alerts from Operations Manager into Service Manager enables the alert to be made into an incident; the effort it takes to resolve each issue is tracked and prioritized, along with any changes that need to be made to resolve the incident.

### **Providing Process Consistency**

Utilizing Service Manager's change management, templates, workflows, and automation capabilities assists in providing improved visibility and accountability, and reduces operational risk. The activities and approval matrix within Service Manager's change management feature help IT departments to build dynamic yet controlled processes around changes in infrastructure such as updates, releases, and tracking.

### **Meeting Service Level Agreements**

Service Manager can help IT departments to progress from being reactive to proactive, from being cost centers to service providers exceeding service level agreements, and move to a true ITaaS model. Moving to an ITaaS model utilizing System Center components can help IT departments become strategic and be prepared to move toward cloud-based services. One of the many ways Service Manager can help IT move to an ITaaS model is by offering out-of-the-box service level objective (SLO) tracking and metrics as well as chargeback. Figure 1.8 shows an example of priority calculations within Service Manager. Priority calculations help track the urgency and impact of incidents being a part of SLO and metric tracking.

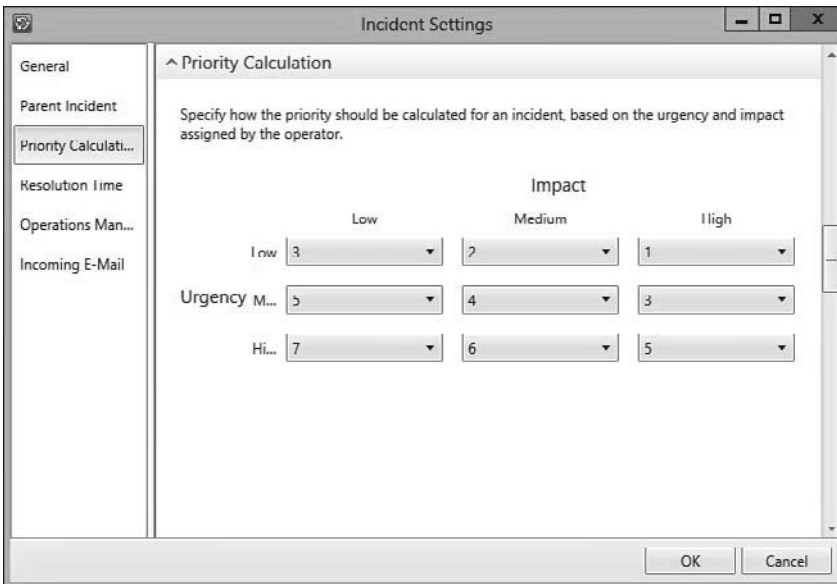


FIGURE 1.8 Priority calculation in incident settings.

## Overview of Microsoft System Center

Microsoft first announced System Center in 2003 at the Microsoft Management Summit (MMS), where it was envisioned as a future solution to provide customers of all sizes with complete application and system management. (See <http://www.microsoft.com/presspass/press/2003/mar03/03-18mssystemcenterpr.msp> for the original press release.) The first phase was anticipated to include Microsoft Operations Manager (MOM) 2004—later released as MOM 2005—and Systems Management Server (SMS) 2003.

### WHAT IS SYSTEM CENTER?

System Center is a brand name for Microsoft's systems management tools and as such has new components added over time. System Center represents a means to integrate system management tools and technologies to help you with systems operations, service management, troubleshooting, and planning.

Different from the releases of Microsoft Office (another Microsoft product), Microsoft initially released System Center in "waves"; the components were not released simultaneously. The first wave initially included SMS 2003, MOM 2005, and System Center Data Protection Manager 2006; 2006 additions included System Center Reporting Manager 2006 and System Center Capacity Planner 2006.

The second wave included Operations Manager 2007, Configuration Manager 2007, System Center Essentials 2007, Virtual Machine Manager 2007, and new releases of Data Protection Manager and Capacity Planner. Next released were System Center Essentials 2007, updates to Virtual Machine Manager (version 2008) Operations Manager 2007 R2, Configuration Manager 2007 R2 and R3, Data Protection Manager 2010, and Service Manager 2010. Think of these as rounding out the second wave.

Microsoft has also widened System Center with its acquisitions of Opalis (rebranded for System Center 2012 as Orchestrator) and AVIcode (integrated into Operations Manager as application performance monitoring or APM). With System Center 2012, Microsoft has moved from the wave approach and now releases the various components at once as a single product. System Center 2012 also includes the first version of a common installer.

The components of System Center 2012 at its release include Service Manager, Operations Manager, Configuration Manager, Endpoint Protection, Data Protection Manager, Orchestrator, Virtual Machine Manager, App Controller, and Advisor. System Center Advisor, previously licensed separately, is now available as a free download, offering a configuration-monitoring cloud service for a number of Microsoft products including SQL Server, Windows Server, SharePoint, Exchange, Lync, and Virtual Machine Manager. System Center 2012 brings substantial new capabilities to all areas of the System Center space, including Service Manager. Microsoft's System Center 2012 cloud and data center solutions provide a common management toolset for your private and public cloud applications and services to help you deliver ITaaS to your business. For further information on what's new in System Center 2012 and its Service Manager component, see Chapter 2, "Service Manager History and Terminology."

System Center builds on Microsoft's DSI, introduced in the "Microsoft's Dynamic Systems Initiative" section earlier in the chapter, which is designed to deliver simplicity, automation, and flexibility in the data center across the IT environment. Microsoft System Center components share the following DSI-based characteristics:

- ▶ Ease of use and deployment
- ▶ Based on industry and customer knowledge
- ▶ Scalability (both up to the largest enterprises and down to the smallest organizations)

Figure 1.9 illustrates the relationship between the System Center components and MOF.

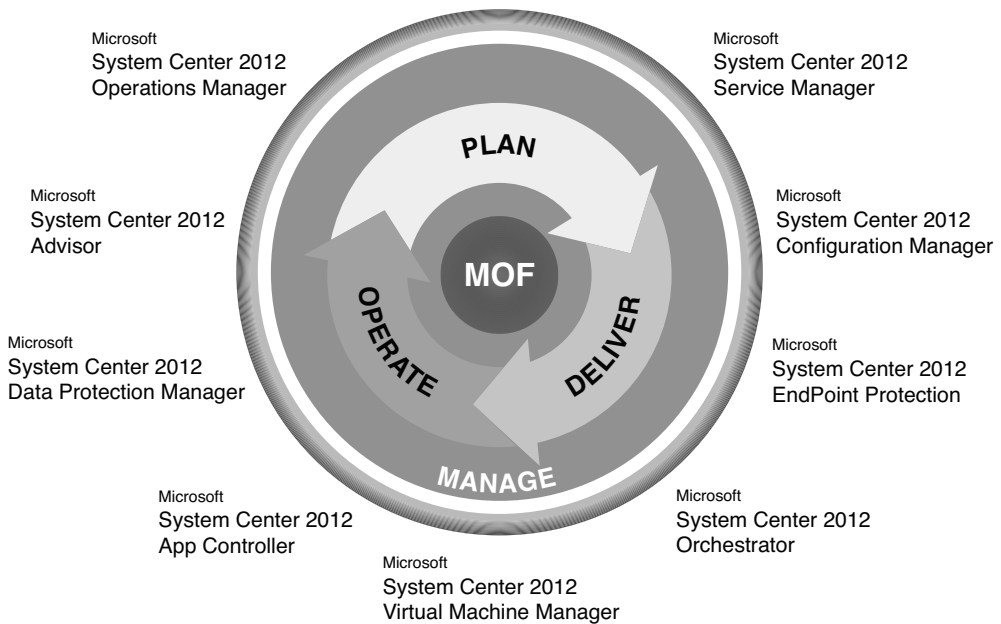


FIGURE 1.9 MOF with System Center components.

## Reporting and Trend Analysis

The data gathered by the System Center components is collected in self-maintaining data warehouses, enabling numerous reports to be viewable. By using the SQL Server Reporting Services (SSRS) engine, reports can also be exported to a Report Server file share; using the Web Archive format retains links, and reports can be scheduled and emailed, enabling users to open these reports without accessing a console. The Service Manager data warehouse is installed in a management group separate from the other Service Manager components and includes individual data marts for Operations Manager and Configuration Manager. The data warehouse enables IT professionals and management access to business intelligence (BI) around the IT infrastructure without needing to be SQL or business intelligence experts. The data warehouse comes with pre-built data cubes and the ability to surface the data in PowerPivot or SharePoint's Performance Point. Gartner Group considers Microsoft as a leader in the BI market, as shown in its Magic Quadrant for Business Intelligence, displayed in Figure 1.10.

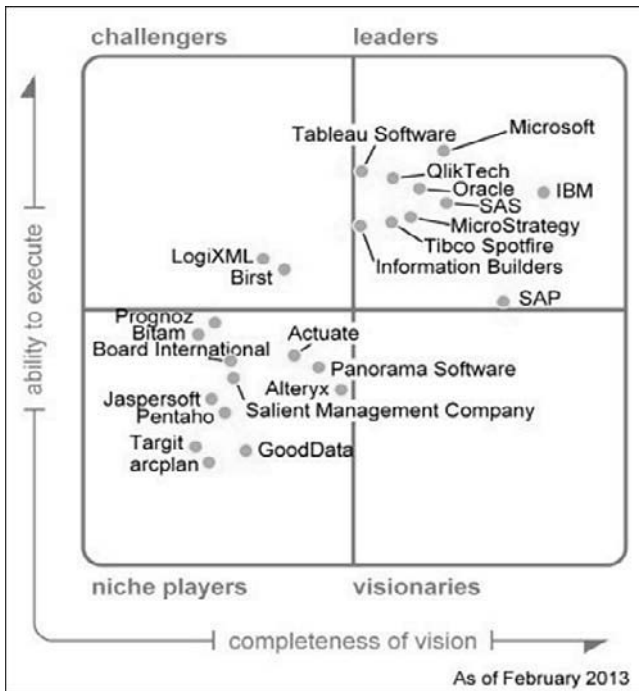


FIGURE 1.10 Magic Quadrant for Business Intelligence (Gartner Group, February 2013).

## Operations Management

System Center 2012 Operations Manager provides the monitoring component of delivering ITaaS, helping you to manage your data center and cloud environments by

- ▶ Delivering flexible and cost effective enterprise-class monitoring and diagnostics while reducing the total cost of ownership by leveraging commodity hardware, configurations, and heterogeneous environments
- ▶ Helping to ensure the availability of business-critical applications and services through market-leading .NET and JEE application performance monitoring and diagnostics
- ▶ Providing a comprehensive view of data centers, and public and private clouds

System Center 2012 Operations Manager also adds extensively to those network monitoring capabilities available with Operations Manager 2007 R2 by incorporating EMC Smarts technology.

## Enterprise Client Management

Microsoft's current release of its flagship configuration management tool, System Center 2012 Configuration Manager, delivers the functionality to detect "shift and drift" in system configurations. Configuration Manager consolidates information about clients and servers, hardware, and software into a single console for centralized management and control. Configuration Manager includes the following features:

- ▶ Increasing the quality of service that IT departments deliver to their business units.
- ▶ Reducing the operational cost to deliver that service.
- ▶ Delivering a best-of-breed management tool.
- ▶ Using the Intune Connector introduced in System Center 2012 Service Pack (SP) 1, Configuration Manager integrates with Windows Intune for mobile device management.

## Endpoint Protection

Previously known as Forefront Endpoint Protection, Microsoft's enterprise antimalware product had its name changed and moved into System Center. Its integration with Configuration Manager enables administrators to better deploy, monitor, and maintain antimalware software and updates, and provides a single infrastructure for client management and security.

Configuration Manager integration enables System Center 2012 Endpoint Protection to provide a single infrastructure for deploying and managing endpoint protection. You have a single view into the compliance and security of client systems through antimalware, patching, inventory, and usage information.

## Service Management

Using Service Manager implements a single point of contact for all service requests, knowledge, and workflow. System Center 2012 Service Manager incorporates processes such as Incident Management, Problem Management, Change Management, and Release Management.

Service Manager's CMDB includes data from Active Directory and Configuration Manager, Operations Manager, Virtual Machine Manager, and Orchestrator through its connectors, enabling it to consolidate information throughout System Center. Some examples follow:

- ▶ When Operations Manager detects a condition that requires human intervention and tracking for resolution, Service Manager can fill this gap. Without Service Manager, one would need to create a ticket or incident in a service desk application. Now, within System Center, Operations Manager can hand off Incident Management to Service Manager.

- ▶ The Orchestrator connector enables runbooks to be exposed to end users through Service Manager's service catalog and then be initiated from Service Manager. For example, a new hire request offering could be published to the SSP, a department manager could complete this form, and Service Manager would start an Orchestrator runbook that creates the new hire's user account in Active Directory.

## Protecting Data

System Center 2012 Data Protection Manager is Microsoft's enterprise disk-based backup solution for continuous data protection supporting Windows servers and Microsoft workloads such as SQL Server, Exchange, SharePoint, and Hyper-V—as well as Windows desktops and laptops. Data Protection Manager provides block-level backup as changes occur, utilizing Microsoft's Virtual Disk Service and Shadow Copy technologies.

This version of Data Protection Manager includes a number of enhancements over the previous version, including

- ▶ Centralized management
- ▶ Centralized monitoring
- ▶ Remote administration
- ▶ Remote recovery
- ▶ Role-based management
- ▶ Remote corrective actions
- ▶ Scoped troubleshooting
- ▶ Push to resume backups
- ▶ SLA-based alerting
- ▶ Consolidated alerts
- ▶ Alert categorization
- ▶ PowerShell
- ▶ Cloud backup to Azure

Data Protection Manager 2012 includes the ability for roaming laptops to get centrally managed policies around desktop protection. It also provides native site-to-site replication for disaster recovery to another Data Protection Manager server. Data Protection Manager includes centrally managed system state and bare metal recovery.

## Virtual Machine Management

Virtual Machine Manager is Microsoft's management platform for heterogeneous virtualization infrastructures. Virtual Machine Manager provides centralized management of virtual machines across several popular hypervisors, specifically Windows Server 2008

R2, 2012, and 2012 R2 Hyper-V, VMware ESXi, and Citrix XenServer implementations. It enables increased utilization of physical servers, centralized management of a virtual infrastructure, delegation of administration in distributed environments, and rapid provisioning of new virtual machines by system administrators and users via a self-service portal.

System Center 2012 Virtual Machine Manager includes the ability to build both Hyper-V hosts and host clusters as it moves from being a virtual management solution to a private cloud solution in terms of management and provisioning. This provisioning involves deploying services using service templates in addition to simply configuring storage and networking.

Virtual Machine Manager enables you to

- ▶ Deliver flexible and cost-effective IaaS. You can pool and dynamically allocate virtualized data center resources (compute, network, and storage) enabling a self-service infrastructure, with flexible role-based delegation and access control.
- ▶ Apply cloud principles to provisioning and servicing your data center applications with techniques such as service modeling, service configuration, and image-based management. You can also state-separate your applications and services from the underlying infrastructure using server application virtualization. This results in a “service-centric” approach to management where you manage the application or service life cycle and not just data center infrastructure or virtual machines.
- ▶ Optimize your existing investments by managing multihypervisor environments such as Hyper-V, Citrix XenServer, and VMware using a single pane of glass.
- ▶ Dynamically optimize your data center resources based on workload demands, while ensuring reliable service delivery with features like high availability.
- ▶ Achieve best-of-breed virtualization-management for Microsoft workloads such as Exchange and SharePoint.

## Deploy and Manage in the Cloud

System Center 2012 App Controller is a self-service portal built on Silverlight, allowing IT managers to more easily deploy and manage applications in cloud infrastructures. App Controller provides a single console for managing multiple private and public clouds while provisioning virtual machines and services to individual business units. Using App Controller with Virtual Machine Manager, data center administrators are able to provision not only virtual machine operating system (OS) deployments but also, leveraging Server App-V, deploy and manage down to the application level, minimizing the number of virtual hard disk (VHD) templates necessary to maintain.

## Orchestration and Automation

System Center 2012 Orchestrator is based on Opalis Integration Server (OIS), acquired by Microsoft in December 2009. It provides an automation platform for orchestrating and integrating IT tools to drive down the cost of one’s data center operations while



improving the reliability of IT processes. Orchestrator enables organizations to automate best practices, such as those found in MOF and ITIL, by using workflow processes that coordinate System Center and other management tools to automate incident response, change and compliance, and service life cycle management processes.

The IT process automation software reduces operational costs and improves IT efficiency by delivering services faster and with fewer errors. Orchestrator replaces manual, resource-intensive, and potentially error-prone activities with standardized, automated processes. This component can orchestrate tasks between Configuration Manager, Operations Manager, Service Manager, Virtual Machine Manager, Data Protection Manager, Active Directory, Windows Azure, and third-party management tools. This positions it to automate any IT process across a heterogeneous environment, providing full solutions for incident management, change and configuration management, and provisioning and service management.

### **Cloud-Based Configuration Monitoring**

System Center Advisor promises to offer configuration-monitoring cloud service for Microsoft Windows Server, SQL Server, Exchange, Lync, Virtual Machine Manager, and SharePoint deployments. Microsoft servers in the Advisor cloud analyze the uploaded data, and then provide feedback to the customer in the Advisor console in the form of alerts about detected configuration issues. System Center Advisor's mission statement is to be a proactive tool to help Microsoft customers avoid configuration problems, reduce downtime, improve performance, and resolve issues faster. Its web-based console is written with Silverlight and is similar to the look and feel of the Microsoft Intune console, Microsoft's cloud-based management service for PCs and other devices.

## **The Value Proposition of Service Manager**

IT organizations must provide efficient and effective services while contending with pressures to reduce operating costs, ensure compliance, and add business value. Service Manager orchestrates people, process, and technology across the Microsoft platform. By integrating information, knowledge, processes, activities, and workflows, System Center Service Manager reduces the cost and improves the quality of IT services.

The value of Service Manager lies in these areas:

- ▶ Delivering efficient and responsive support through the self-service portal for provisioning, self-help and managing requests
- ▶ Optimizing processes and ensuring their use through templates that guide IT analysts through best practices for change and incident management
- ▶ Reducing resolution times by cutting across organizational silos, ensuring that the right information from incident, problem, change, or asset records is accessible through a single pane
- ▶ Extending the value of the Microsoft platform by connecting the processes and activities among System Center components, and using reporting as a driver for key performance indicators (KPIs)

## Summary

This chapter introduced you to service management. You learned that service management is a process that touches many areas within ITIL and MOF, such as incident/problem management, change/release management, configuration management, asset management, request fulfillment, automation, dashboards, and reporting. It discussed the functionality delivered in Service Manager that you can leverage to meet these challenges more easily and effectively.

Microsoft's management approach, which incorporates the processes and software tools of MOF and DSI, is a strategy or blueprint intended to build automation and knowledge into data center operations. Microsoft's investment in DSI includes building systems designed for operations, developing an operationally aware platform, and establishing a commitment to intelligent management software.

Service Manager drives integration, efficiency, and IT business alignment. Together with Operations Manager, Configuration Manager, Virtual Machine Manager, Orchestrator, and the other System Center components, Service Manager is a critical component in Microsoft's approach to system management that can increase your organization's agility in delivering on its service commitments to the business.

The next chapter looks at the technology and terminology used by this component, and looks at its features, including changes in System Center 2012 and Service Manager.

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