Microsoft

Unified management for the Cloud OS
System Center 2012 R2

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Contents

Trends

The rapidly changing world of information technology (IT) has transformed how we do business, rendering many traditional management approaches and methodologies obsolete.

Several key IT trends have reshaped the industry, creating new opportunities for enterprises and service providers. These trends include the following:

New applications: Business innovation and agility drive the need for enhanced deployment, system, and integration flexibility. Such flexibility demands new application and service architectures that promote greater connectivity for the end user from virtually anywhere, anytime, on any device. These applications, built on new frameworks with richer sets of common services, empower the end user to take advantage of familiar productivity, collaboration, and social networking tools. Organizations deploy these frameworks on-premises, in the cloud, and in hybrid environments.

Device proliferation: Innovations in consumer computing devices enable end users to work from almost anywhere, making them more productive. Highly mobile device form factors now provide instant connectivity and powerful features such as touch screens, cameras, and GPS. These enhanced capabilities have created rich user experiences and preferences that carry with them certain expectations of enterprise computing. This "consumerization of IT" trend offers enterprise IT teams opportunities to support and incorporate these experiences and devices, enabling whole new work scenarios with convenient access to data and applications in the field and new contextually relevant device applications.

Data explosion: The exponential growth of available data creates significant challenges for IT. The data often comes from a variety of internal and external sources, not to mention business and personal computing devices, and different structured and unstructured formats. As a result, relevant and useful data insights remain hidden in combinations of multiple data sources. In many cases, the sheer volume of data prevents organizations from capturing and analyzing information with traditional methods such as storage in a database for query and analysis. In certain cases, the data streams at a rate and volume that prevents any data capture or process beyond a limited window of time.

Cloud computing: To address the challenges of new applications, device proliferation, and data explosion, organizations need to find effective and efficient ways to harness the latest IT innovations in their environments. The ability to abstract resources from individual hardware components into a pooled set of resources while maintaining workload isolation enables organizations to achieve highly agile workload provisioning, continuous availability, elastic scaling, and optimal use of

resources. The cloud-computing delivery model has evolved with new IT service delivery models to render and manage these capabilities to their full potential.

Many enterprise IT departments today have recast their datacenter services into private cloud computing models. This transformation includes automation of their delivery model with self-service provisioning and administration portals, plus instituting charge-back or report-back capabilities based on resource usage.

Datacenter service providers have also transformed their service delivery to cloud-computing models, enabling them to offer more attractive economics due to resource pooling, often at higher levels of IT service maturity.

Unified management for the Cloud OS

The Microsoft vision for a new era of IT provides one consistent platform for infrastructure, applications, and data: the Cloud OS. The Cloud OS spans your datacenter environments, service provider datacenters, and Windows Azure, enabling you to easily and cost-effectively cloud optimize your business.

For years now, Microsoft has been building and operating some of the largest cloud applications in the world. The expertise culled from these experiences along with our established history of delivering market-leading enterprise operating systems, platforms, and applications has led us to develop the Microsoft Cloud OS.

The Cloud OS vision combines Microsoft knowledge and experiences with today's trends and technology innovations to deliver a modern platform of products and services that helps organizations transform their current server environment into a highly elastic, scalable, and reliable cloud infrastructure. Using the software that powers the Cloud OS vision, organizations can quickly and flexibly build and manage modern applications across platforms, locations, and devices, unlock insights from volumes of existing and new data, and support end-user productivity wherever and on whatever device they choose.

System Center 2012 R2 delivers unified management and agile system administration for the Cloud OS by offering consistent management experiences across on-premises, service provider, and Windows Azure environments. This unique approach, as outlined in this paper, helps you realize your datacenter transformation goals by delivering the following attributes:

- **Enterprise-class**: System Center 2012 R2 offers enterprise-class capabilities that can deliver best-in-class management of Windows Server infrastructure and first-party Microsoft workloads (such as Exchange, SharePoint, and SQL). With SAN-based storage management technologies you can virtualize even your most demanding workloads. In addition, System Center 2012 R2 enables virtual networking in isolated multi-tenant environments, resulting in extensive flexibility for your virtualized workloads.

- **Simple and cost-effective**: System Center 2012 R2 helps you reduce datacenter complexity. Service templates and runbooks simplify System Center infrastructure deployments. Open and extensible web-based interfaces into System Center 2012 R2 capabilities enable easy integration with your existing investments in portals or web-based tools. Furthermore, System Center supports at-scale management of innovative Windows Server storage technologies based on industry-standard hardware.

- **Application focused**: System Center 2012 R2 focuses on optimizing your applications and workloads through their lifecycle. Rich

diagnostics and insight facilitate predictable application service level agreements (SLAs), including the ability to elastically scale applications across clouds. System Center 2012 R2 also facilitates standardized application provisioning to empower application owners.

- **Hybrid enabled**: System Center 2012 R2 enables hybrid cloud computing at its core. With System Center 2012 R2 you gain consistent management experiences that span across Windows Server and Windows Azure environments, including provisioning, automation, self-service, and monitoring.

System Center 2012 R2 capability overview

By delivering consistent, unified management across on-premises, service provider, and Windows Azure environments, System Center 2012 R2 helps you transform your datacenter.

To help you modernize your datacenter, System Center 2012 R2 delivers five key capabilities:

- Infrastructure provisioning

- Infrastructure monitoring

- Automation and self-service

- Application performance monitoring

- IT service management

System Center capabilities

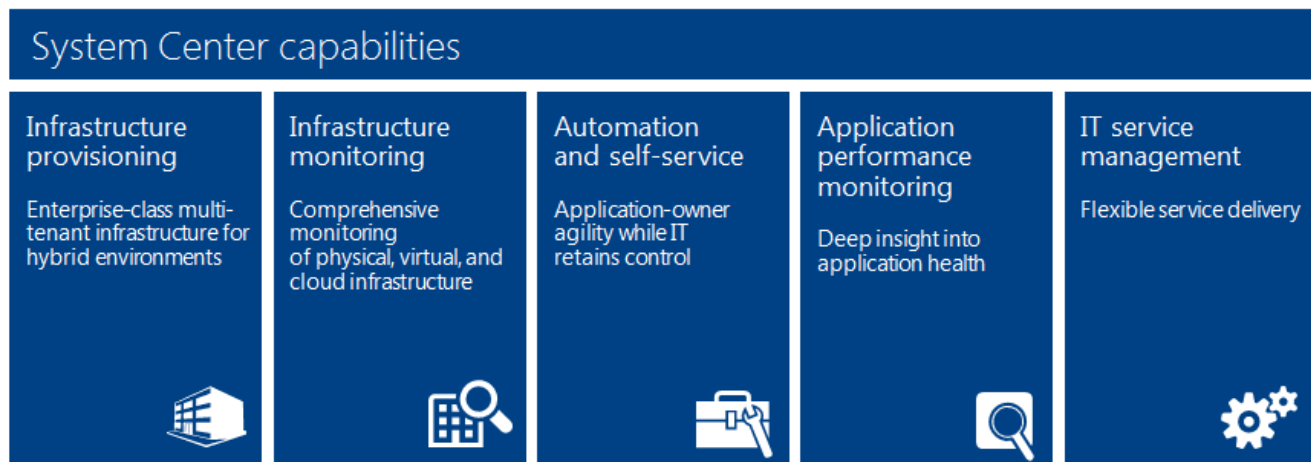| Infrastructure provisioning	Infrastructure monitoring	Automation and self-service	Application performance monitoring	IT service management
Enterprise-class multi-tenant infrastructure for hybrid environments	Comprehensive monitoring of physical, virtual, and cloud infrastructure	Application-owner agility while IT retains control	Deep insight into application health	Flexible service delivery

Figure 1: System Center capabilities.

Infrastructure provisioning

Infrastructure provisioning is about enabling enterprises and service providers to provision physical, virtual, and cloud infrastructures that meet key requirements such as workload scale and performance, multi-tenancy, and chargeback. System Center 2012 R2 can provision custom or standardized infrastructures for on-premises, service provider, or Windows Azure environments.

Enterprise-class performance
When virtualizing top-tier applications, you need a virtualization platform and management solution that can provide the necessary scale and performance to meet your business requirements. Many virtualization efforts do not realize their full potential due to the lack of adequate datacenter management, which can lead to uncontrolled virtual machine sprawl. At the same time, the datacenter management solution has to be flexible enough to build on your existing

infrastructure investments. For example, applications might be deployed on physical servers and consume storage area network (SAN)-based storage. Also, most organizations have to support a diverse datacenter infrastructure environment to deliver on the requirements of their application counterparts.

System	Resource	Maximum number		Improvem factor
		Windows 2008 R2	Windows Server 2012 R2	
Host	Logical processors on hardware	64	**320**	5×
	Physical memory	1 TB	**4 TB**	4×
	Virtual processors per host	512	**2,048**	4×
Virtual machine	Virtual processors per virtual machine	4	**64**	16×
	Memory per virtual machine	64 GB	**1 TB**	16×
	Virtual disk capacity	2 TB	**64 TB**	32x
	Active virtual machines	384	**1,024**	2.7×
Cluster	Nodes	16	**64**	4×
	Virtual machines	1,000	**8,000**	8×

Figure 2: Each instance of System Center2012 R2 Virtual Machine Manager server manages up to 1000 hosts and 25,000 virtual machines.

System Center 2012 R2 delivers best-in-class management for Windows Server environments by supporting the scale and performance delivered by Windows Server 2012 R2. The Virtual Machine Manager (VMM) component of System Center 2012 R2 plays a critical role in enabling virtualization-management scale. For example, a single VMM server can support up to 1,000 hosts and 25,000 virtual machines. With VMM, you can reliably virtualize your top-tier applications and workloads by using features such as the following:

- Offloaded data transfer support for faster workload provisioning with templates
- Online VHDX resize support to ensure on-demand storage elasticity for your application or workload needs
- Live cloning of running virtual machines without downtime
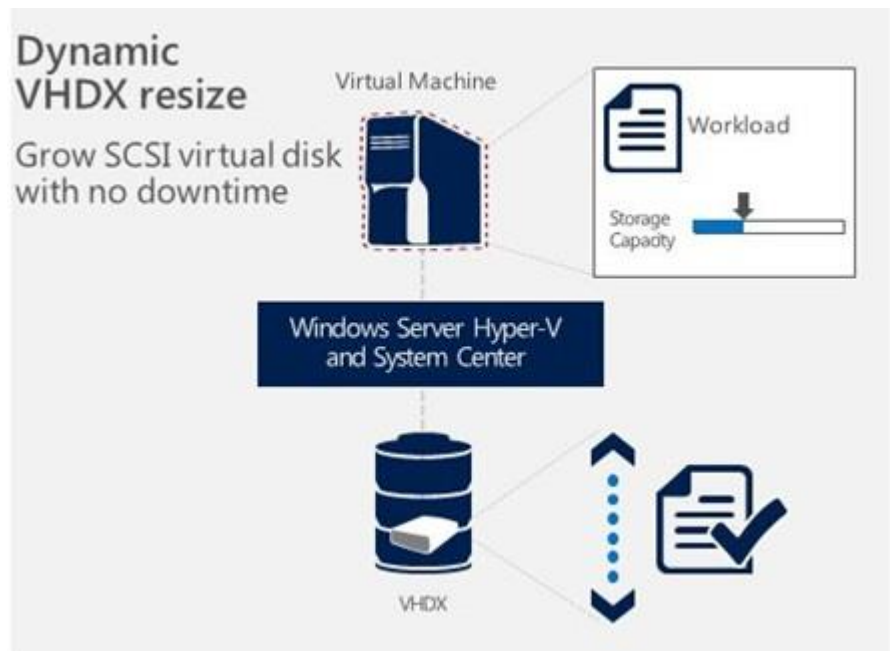- Dynamic Memory resizing for running virtual machines without downtime

Figure 3: Dynamic VHDX resize.

To deliver maximum flexibility and operational efficiency, VMM enables storage management across a variety of storage approaches such as file and block storage. If you've invested in block-based storage such as SAN, VMM supports connectivity to SANs through virtual fiber channel switches. This support enables your IT staff to virtualize the most demanding workloads and connect them directly to the highest tier storage platforms.

Recognizing the reality of diverse customer investments, Microsoft developed System Center to provide rich support for heterogeneous datacenter management. VMM enables Dynamic Memory support for Linux virtual machines. With the Data Protection Manager (DPM) component, System Center 2012 R2 provides file level backups for Linux virtual machines as well as the ability to restore full Linux virtual machines.

For customers with physical server environments, the Configuration Manager component of System Center 2012 R2 enables physical server deployments, upgrades, and patch management.

Simplified provisioning and migration
As IT budgets and headcount remain under pressure, businesses are looking to reduce infrastructure complexity while developing operationally efficient ways to manage their datacenters. Consolidation through basic server virtualization has proven to be the low hanging fruit with many organizations having already reaped the benefits of such a solution. As a next step, organizations should consider industry-standard server technologies as an alternative to specialty hardware

technologies for big budget infrastructure spending such as storage and disaster recovery. These technologies have advanced to the point where they offer many of the capabilities and the performance of specialty hardware, for a fraction of the price. To ensure that scarce IT staff can focus on strategic IT projects rather than keeping IT services running smoothly, you should continue to invest in automation technologies that ensure predictable deployments while mitigating chances of human error.

With Windows Server 2012, Microsoft delivered File and Storage Services (including Storage Spaces), which are predicated on the use of industry-standard storage that's completely managed by server software. These storage technologies provide availability, resiliency, and performance that would normally be expected from high-end hardware. With System Center 2012 R2, VMM supports, at-scale management of these storage technologies such as Storage Spaces, bare-metal provisioning of scale-out Windows File Server clusters, discovery of physical disks, and creation of virtualized storage pools.

To reduce time, effort, and downtime required to upgrade from Windows Server 2012, Windows Server 2012 R2 offers the ability to automatically upgrade Hyper-V clusters (based on Windows Server 2012) to Windows Server 2012 R2 using System Center 2012 R2. The VMM component supports the cross-version Live Migration feature that enables you to easily upgrades workloads from Windows Server 2012 hosts to Windows Server 2012 R2 hosts. Microsoft has also enabled faster deployments of System Center by providing service templates and runbooks for multiple infrastructure elements.

VMM simplifies cross-datacenter disaster recovery of virtual machine-based infrastructure services by providing the private cloud abstraction layer in the source and destination datacenters. System Center, working in conjunction with Hyper-V Replica (for virtual machine replication) and Windows Azure Hyper-V Recovery Manager (for automated recovery orchestration), enables this functionality. Without this capability, companies would be looking at alternatives such as expensive SAN-based replication.

In addition, the Orchestrator component of System Center 2012 R2 continues to enable general purpose datacenter automation thereby driving consistency and predictability in provisioning processes such as server deployment, patching, and upgrades.

Multi-tenant cloud infrastructure

As cloud computing adoption increases, large enterprises and service providers are looking to take their datacenter infrastructure to the next level of scale and efficiency, with requirements such as multi-tenancy, bring-your-own-IP flexibility, chargeback, and infrastructure standardization. Large enterprise IT organizations need to deliver

infrastructure services in a secure, isolated manner to their internal line-of-business (LOB) constituencies or easily integrate their IT infrastructure from acquired companies. Many enterprises are also exploring showback and chargeback solutions to incentivize the right infrastructure consumption behaviors by their internal customers.

Service providers have to deliver secure multi-tenancy and billing as core requirements for hosting multiple customers on a shared infrastructure. They also need a platform and management solution that streamlines infrastructure plumbing so that they can spend their energies delivering value-added differentiation.

With System Center 2012, Microsoft enabled multi-hypervisor private clouds (spanning Hyper-V, VMware, vSphere, and Citrix XenServer) so that IT staffs could deliver infrastructure as a pool of automated resources and carve out datacenter capacity for use by their LOB counterparts.

Building on these capabilities, System Center 2012 SP1 delivered support for multi-tenant environments for service providers and large enterprises through support for virtual networks enabled through Hyper-V Network Virtualization and the ability to aggregate multiple instances of System Center infrastructure with the Service Provider Foundation (SPF) application programming interface (API).

System Center 2012 R2 goes one step further, strengthening Microsoft software-defined networking solutions by enabling provisioning of multi-tenant edge gateways to bridge physical and virtual datacenters. This feature capability enables flexible workload mobility in hybrid cloud computing models. System Center 2012 R2 also enables chargeback for multi-tenant environments with granular infrastructure metering and the ability to do analytics on business and operational metrics. In addition, you can take advantage of Cloud Cruiser (an independent software vendor (ISV) and part of the Microsoft Partner alliance) cost analytics for a more fully-featured chargeback solution.

Extend System Center to provision Windows Azure infrastructure
Enterprise IT organizations are looking for a single management toolset to provision and manage their datacenter infrastructure, irrespective of deployment location. With such functionality an organization can invest in unified management infrastructure and easily centralize IT operations and associated skillsets.

System Center 2012 R2 provides a unified tool to provision and manage virtual machines into on-premises and Windows Azure environments, including easy workload portability without a need for format conversion. The App Controller component of System Center 2012 R2 enables migration of on-premises Hyper-V virtual machines into Windows Azure virtual machines. Once in Windows Azure, enterprise IT

organizations can manage the virtual machine (including operations such as start, stop) through the App Controller user interface. The Orchestrator component of System Center 2012 R2 provides a Windows Azure Integration Pack for at-scale provisioning and management of Windows Azure virtual machines and Windows Azure Storage in an automated manner.

Infrastructure monitoring

Once customers provision their infrastructure, the management solution needs to ensure reliable performance and availability to deliver on the underlying business and operational SLA. System Center 2012 R2 provides comprehensive monitoring for datacenter infrastructure – physical, virtual, or cloud – across on-premises datacenters, service provider datacenters, and Windows Azure.

Best-in-class Windows monitoring, robust cross-platform monitoring

Many organizations today use a heterogeneous datacenter environment, spanning Windows Server and non-Windows Server environments. As such, you need a single solution that can help ensure infrastructure health and configuration throughout such a diverse environment.

System Center 2012 R2 delivers best-in-class monitoring for Windows Server environments. The considerable size of the Operations Manager installed base has helped created a wealth of information on Windows Server-based environments; this in turn helps inform the capabilities built into the Management Packs that Operations Manager supports. System Center also provides rich monitoring across platforms, such as RHEL/SUSE Linux, Oracle Solaris, HP-UX, and IBM AIX. With the Configuration Manager component, System Center provides cross-platform configuration support for Linux and Unix systems.

Network monitoring and cloud infrastructure health

To ensure infrastructure health, your organization requires a monitoring solution that provides an end-to-end view into your physical, virtual, and cloud infrastructures. Microsoft strives to enable a single, familiar console to monitor all infrastructure resources, whether they are on-premises, in the cloud, or at a hosting service provider.

The network monitoring features built into the Operations Manager component enable you to discover and monitor the health of physical devices along with associated "vicinity" views that shows the device's interconnections with the rest of the network, including virtualized switches. To provide deep visibility into on-premises cloud infrastructure health, System Center 2012 R2 delivers a dashboard view that brings together availability and performance metrics across storage, network, and compute so that the datacenter administrator can take any necessary remediation measures. The dashboard includes health metrics

on a variety of resources, such as load balancers, Internet Information Services (IIS) pools, storage logical unit numbers (LUNs), hosts, storage pools, file servers, virtual machines, VMM servers, and host clusters.

As an example of how Microsoft is extending familiar monitoring capabilities to monitor public clouds, the System Center Management Pack for Windows Azure enables you to monitor availability and performance of your Windows Azure resources and services through your System Center Operations Manager console. Additionally, this Management Pack offers the ability to combine on-premises components with Windows Azure components, providing a hybrid view into the application service.

System Center supports monitoring of VMware vSphere environments with the Management Pack offered by Veeam, a Microsoft ISV partner in this space.
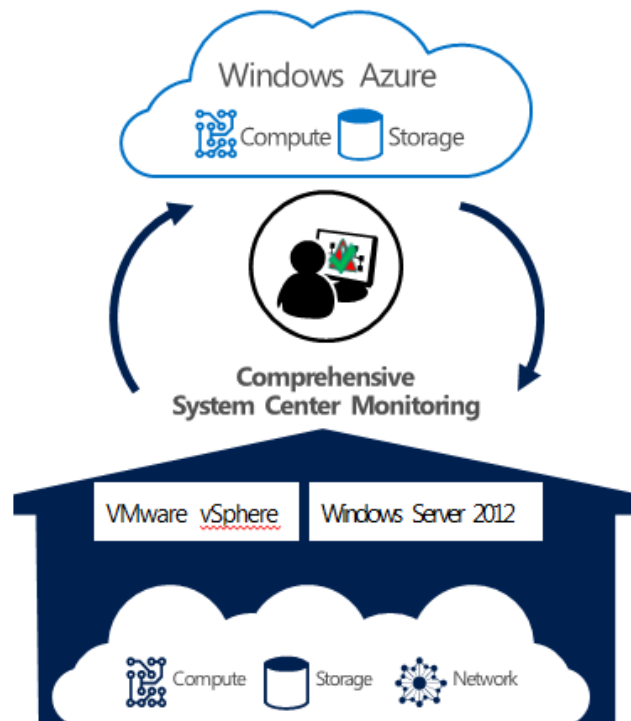

Figure 4: Comprehensive infrastructure monitoring.

Best practice workload configuration
Often times, you discover configuration drifts to be the root cause of application and/or infrastructure downtime. To ensure infrastructure and workload reliability, organizations look for consistent and reliable configuration guidance. With System Center Advisor, your IT department benefits from best-practice configuration guidance for your Microsoft server workloads (such as Windows Server 2012, Hyper-V Server 2012, SQL, Exchange, Lync, and SharePoint). System Center

Advisor helps IT operations staff proactively avoid problems associated with server configuration issues, and resolve those types of issues faster. System Center Advisor offers extensive configuration guidance in its knowledge base, which has been generated from thousands of hours of Microsoft customer support engagements. You can productively use that knowledge and guidance to optimize your datacenter infrastructure.

Automation and self-service

With public cloud computing taking off, enterprise application owners expect simplicity and agility when dealing with IT staffs. They might even work around the IT department if their requirements are not met at the speed that they're looking for. Such a scenario presents a less-than-ideal outcome for IT professionals trying to establish a trusted advisor relationship with their application and business counterparts. To mitigate such outcomes, IT staffs need centralized visibility and control into all datacenter infrastructure used to host applications.

System Center 2012 R2 gives application owners the agility they need while providing IT staffs with the tools to drive needed automation and control.

Self-service application provisioning

To meet the speed and agility requirements that business stakeholders demand, IT needs to empower application owners with self-service access to provision their applications. At the same time, IT professionals (at enterprises and service providers) and application owners must work together to deliver successful outcomes. IT staffs need centralized control over delivering infrastructure as pooled resources while application owners need the ability to define the infrastructure requirements and SLAs that their applications require.

Using the VMM component of System Center 2012 R2, application owners can work with IT staffs to define standard application blueprints using service templates. Defining application requirements through a repeatable construct such as service templates makes provisioning faster and less error-prone. You can take advantage of service templates to provision LOB applications as well as Microsoft workloads (such as SharePoint) for production deployments. These templates capture application or workload requirements, such as hardware profile, operating system profile, and application-tier profile so that VMM can provision the appropriate infrastructure resources to meet those requirements. IT professionals can then delegate access to application owners so that they can self-provision their application services with these pre-defined service templates.

The App Controller component of System Center 2012 R2 provides the application owner self-service experience. With App Controller, the application owner can specify template configuration and then trigger

one-click deployment after which VMM provisions the underlying infrastructure.

Unified management views and artifacts across Windows Server and Windows Azure

As mentioned previously, IT staffs need to have a centralized view into all aspects of datacenter infrastructure — on-premises, at service providers, or in public clouds such as Windows Azure. This comprehensive view enables IT professionals to deliver on the promise of a datacenter without boundaries, one in which datacenter capacity can be easily extended on-demand, based on business requirements. Such capabilities give IT staffs the confidence to empower application owners to self-provision their applications, irrespective of where the underlying pool of infrastructure resides.

The App Controller component of System Center provides a unified view across on-premises, service provider, and Windows Azure infrastructure, delivering the visibility and control that IT professionals need. Simultaneously, application owners can self-provision their applications using App Controller into datacenter capacity delegated by IT staffs. App Controller also enables easy virtual machine and workload portability between Windows Server and Windows Azure without a need for format conversion. IT professionals can easily extend datacenter capacity by uploading on-premises VHD images into Windows Azure, which can then be used by application owners for LOB apps or Microsoft workloads (such as SharePoint). Using App Controller, application owners can also migrate core applications such as SQL Server and SharePoint Server from on-premises environments to Windows Azure with just a few clicks.

Scale application tiers with automation and integration

For applications that see transient usage patterns, such as applications with seasonality-based usage peaks, application owners may need the flexibility to trigger additional capacity based on application meeting or exceeding a defined threshold.

System Center 2012 R2 enables application owners to work with their infrastructure admin counterparts to deploy automated workflows that trigger additional capacity provisioning. This functionality is made possible by the rich automation toolsets that Microsoft provides and supports, including Orchestrator and Windows PowerShell. As an example, you could provision additional capacity in Windows Azure from within Orchestrator by using the Windows Azure Integration Pack to trigger an automated workflow based on an Operations Manager threshold alert.

Application performance monitoring

With the pace of innovation that cloud computing has fueled, it is critical to support faster application cycles and real-time collaboration between application developers and operations staff. Microsoft is committed to investing deeply in the right management tools so that IT and application owners have the information to quickly diagnose and remediate applications. System Center provides the deep insight necessary to deliver predictable application SLAs to application owners and in turn, to business stakeholders.

Deep application insight

Applications are what really matter to businesses. As a result, IT strives to deliver predictable SLAs that help assure that business-critical applications are available and performing reliably. That means having access to rich application health metrics to ensure the triggering of the right remediation actions.

System Center 2012 R2 Operations Manager offers deep application diagnostics and insight – including code level issue traceability – for .NET and Java applications. Operations Manager delivers rich performance and availability metrics for multiple perspectives, such as server-side monitoring, client-side monitoring, end-user experience monitoring, and synthetic transaction monitoring. Operations Manager also provides the ability for operations staff to drill down deep into application stack traces and performance exceptions to identify the offending line of code.

As part of new Java application performance monitoring capabilities, System Center 2012 R2 offers support for Java Tomcat application servers and multiple Java web services frameworks in Windows as well as RHEL/SUSE Linux environments. You can also consume end-to-end application transaction insights in your Operations Manager console with the BlueStripe Management Pack (BlueStripe is an ISV and part of the Microsoft Partner alliance). In addition, easy-to-use reporting and dashboarding enables you to track and communicate application SLAs more effectively.

Operations Manager has an extensive knowledge base of Management Packs that can optimize availability and performance for first party Microsoft workloads (such as Exchange, SharePoint, and SQL) as well as third-party enterprise LOB applications (such as SAP). You can access and download the latest Microsoft Management Packs from TechNet.
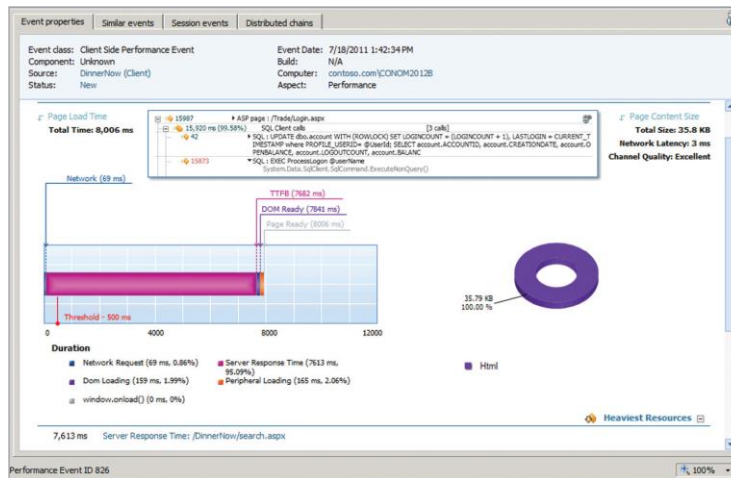
Figure 5: Deep integration with .NET applications enables developers to pinpoint the root cause of issues down to the offending line of code, enabling faster resolution.

Integrated DevOps that spans people, processes, and systems.

In today's world of cloud computing and modern apps, you want to ensure that your applications are up-to-date in terms of functionality and performance while being delivered within a rapid application lifecycle. That means the velocity of code changes is much faster, necessitating great collaboration between developers and operations staff. You wouldn't want your application owners and IT operations teams spending unproductive cycles trying to identify if the source of downtime lay in the application or the underlying infrastructure.

Operations Manager integrates with Microsoft Visual Studio through a connector to enable productive development and operations collaboration. The connector simplifies sending detailed diagnostics and insight provided by Operations Manager directly to the developers work queue. Additionally, System Center 2012 SP1 enabled IntelliTrace telemetry into the System Center-Visual Studio integration. As a result, developers can work in their native environments to debug application issues, thereby improving productivity further. With System Center 2012 R2, we've enabled a unified monitoring agent between System Center and Visual Studio to further simplify issue debugging and collaboration.

In combination, these capabilities can help facilitate faster remediation of application issues, which enables delivery of predictable SLAs.

Cloud-integrated insight in a familiar monitoring console

Increasingly global deployments make getting an accurate view of end user experiences all the more important for application owners. As more and more applications get deployed to the public clouds such as Windows Azure, there is a great opportunity to identify patterns and best practices and bring them back to your datacenters so that you can use them to optimize your on-premises applications and infrastructure.

System Center uses intelligence from Windows Azure that you can consume through your familiar Operations Manager monitoring console. System Center Global Service Monitor (GSM), a Software Assurance benefit to System Center customers, offers an "outside-in" view of application health from an end user perspective, based on global points of presence in Windows Azure. GSM supports dev-ops with integration between System Center and Visual Studio to exchange relevant end-user experience metrics using defined web application URLs and thresholds.

System Center Advisor runs on Windows Azure and enables you to consume best-practice configuration guidance for Microsoft workloads in your familiar Operations Manager console.
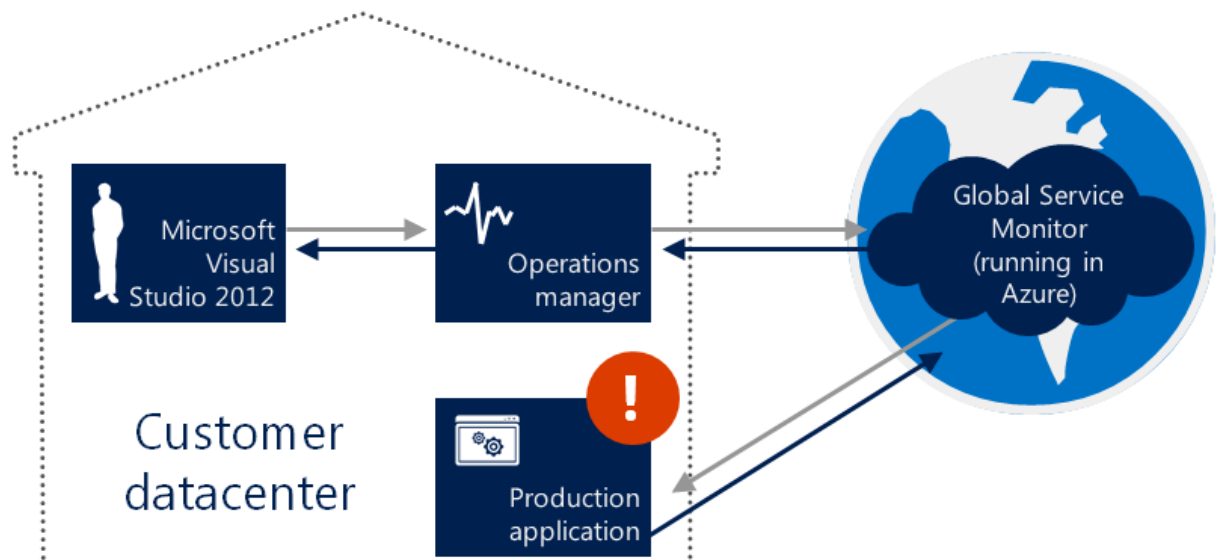

Figure 6: Cloud-integrated insight with Global Service Monitor (GSM)

IT service management

Even as organizations try to chart their unique journey to cloud computing, enterprise IT continues to carry the accountability for centralized oversight and governance into core datacenter processes and systems. Such accountability is necessary to ensure enterprise-wide standardization and compliance, particularly in the context of stringent regulations such as the Sarbanes Oxley act. To maximize operational efficiency, IT services need to be defined and consumed in a centralized manner with the right balance of flexibility and control. System Center enables enterprise IT organizations to deliver services in a flexible manner by providing the necessary service management processes such as custom service request offerings, process/ knowledge integration, and chargeback.

Self-service requests for private cloud capacity
The Service Manager component of System Center enables standardized IT service delivery by publishing a service catalog against which end users and application owners can request IT services, including private

cloud capacity, using the Cloud Service Process Pack (CSPP), which is integrated into Service Manager. The CSPP enables provisioning and allocation of pooled infrastructure resources to internal LOB application teams based on requirements they submit through the Service Manager portal. SharePoint 2013 support for the service catalog portal is included in System Center 2012 R2.

Industry-standard service management and process workflows

Large enterprises often look to IT to deliver predictable services based on an integrated approach spanning people, processes, and systems.

Service Manager provides industry-standard service management processes, including incident management, problem management, change management, and release management to assure predictable service delivery. A Configuration Management Database (CMDB) offers a single repository to capture the relationships across infrastructure and applications, helping facilitate change management and associated risk mitigation.

Business and operational insight

To ensure efficient resource utilization, IT needs a way to track infrastructure resource consumption by business units and make it "visible" to them to incentivize the right consumption behaviors. IT also needs the ability to track performance trends against defined operational SLAs.

Service Manager delivers in-box metering and price sheets for virtual machines and private clouds through integration with VMM and Operations Manager data warehouse in Service Manager. Rich self-service reporting (including integration with MS Office, Active Directory, and SAP) helps analyze operational SLA trends.

Summary

To compete in the global economy and keep up with the pace of innovation, IT organizations must improve their agility when responding to changing business needs and their ability to improve efficiency and better manage costs while enabling their business and users to stay continuously productive.

Microsoft has gained expertise from years of building and operating some of the largest cloud applications in the world. Combining this expertise with their experiences in delivering market-leading enterprise solutions, Microsoft has developed a new platform vision: the Cloud OS. Microsoft uniquely delivers the Cloud OS through a consistent platform that spans on-premises datacenters, service provider datacenters, and Windows Azure. System Center 2012 R2 delivers unified management for the Cloud OS by delivering consistent capabilities — infrastructure provisioning, infrastructure monitoring, automation and self-service, application performance monitoring, and IT service management — across these cloud computing deployment models, helping you transform your datacenter.

Next steps

- Refer to additional System Center 2012 R2 resources
  http://www.microsoft.com/en-us/server-cloud/products/system-center-2012-r2

- System Center 2012 R2 on TechNet
  http:// technet.microsoft.com/systemcenter

- Download and evaluate System Center 2012 R2
  http://msft.it/trycloudos

- System Center marketplace:
  http://systemcenter.pinpoint.microsoft.com

- Check out our blogs
  http://blogs.technet.com/server-cloud

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