Project Leadership Associates

System Center 2012 R2 Overview

December 17, 2013

Licensing

Managed Servers

- **Consistent licensing model across editions:** Processor-based license, covering up to two processors for server management. User- or OSE- based license for client management.

- **Datacenter:** Maximizes cloud capacity with unlimited virtualization for high density private clouds

- **Standard**: For lightly or non-virtualized private cloud workloads.

Edition	Components Included
Microsoft System Center 2012 R2 Datacenter	• Operations Manager • Configuration Manager • Data Protection Manager • Service Manager • Virtual Machine Manager • Endpoint Protection • Orchestrator • App Controller
Microsoft System Center 2012 R2 Standard	

Licensing

Managed Clients

- Client Management Licenses (MLs) are required to for managed devices that run <u>non-server OSEs</u>

	Configuration Manager Client ML	**Endpoint Protection Subscription**	**Client Management Suite Client ML**
Components Included	Configuration Manager Virtual Machine Manager	Endpoint Protection	Service Manager Operations Manager Data Protection Manager Orchestrator
Included in Core CAL Suite	✓	✓	
Included in Enterprise CAL Suite	✓	✓	✓

System Center 2012 R2 solution overview

System Center capabilities

Infrastructure provisioning

Enterprise-class multitenant infrastructure for hybrid environments

Infrastructure monitoring

Comprehensive monitoring of physical, virtual, and cloud infrastructure

Automation and self-service

Application owner agility while IT retains control

Application performance monitoring

Deep insight into application health

IT service management

Flexible service delivery

Infrastructure provisioning

Enterprise-class multi-tenant infrastructure for hybrid environments

IT demands

Effectively manage virtual environments at-scale

- Supports Windows Server scale & performance:
  - Dynamic VHDX resize
  - Dynamic Memory support for Linux
  - Snapshot running VM
- Fibre-channel SAN connectivity

Reduce infrastructure complexity

- Manage Windows Server file storage & Storage Spaces
- Automated Hyper-V cluster upgrades with VMM
- Service templates & runbooks for System Center components
- Enable protection & recovery across datacenters

Deliver efficient infrastructure services across customer base

- Multi-hypervisor clouds
- Manage virtual networks
- Automated standards-based TOR switch configuration
- Multi-tenant edge gateway provisioning
- Service management automation

Single tool for on-premises and cloud provisioning

- Migrate workloads to Windows Azure Virtual Machines
- Windows Azure Integration Pack

System Center supports enterprise-class scale and performance

System	Resource	Maximum number		Improvement 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×

Manage Windows Server 2012 R2 virtualization scale with System Center 2012 R2 Virtual Machine Manager (VMM). Each VMM server manages upto 1000 hosts and 25000 VMs.

Enterprise-class management & open source support

Complete virtualization-management

VMM support for automated Hyper-V cluster upgrades without downtime

Snapshot running VM without downtime

Flexible storage provisioning & management

Windows Server file-based storage & Storage Spaces, incl. bare metal file server cluster provisioning

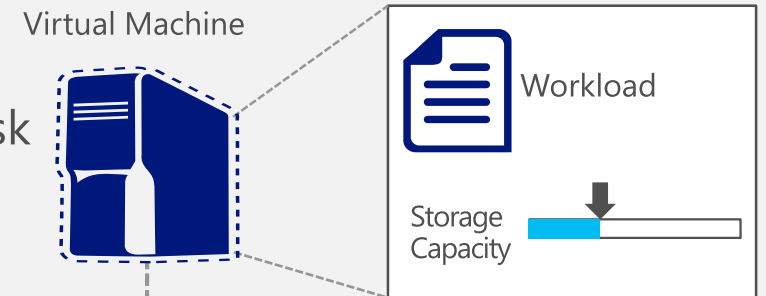VM connectivity into fibre-channel SAN storage

Robust Linux in-guest support

Greater VM density per host with Dynamic Memory support

File-level VM backups, restore full VMs

Dynamic VHDX resize

Grow SCSI virtual disk with no downtime

Virtual Machine

Workload

Storage Capacity

Windows Server Hyper-V and System Center

VHDX

Multi-tenant cloud infrastructure

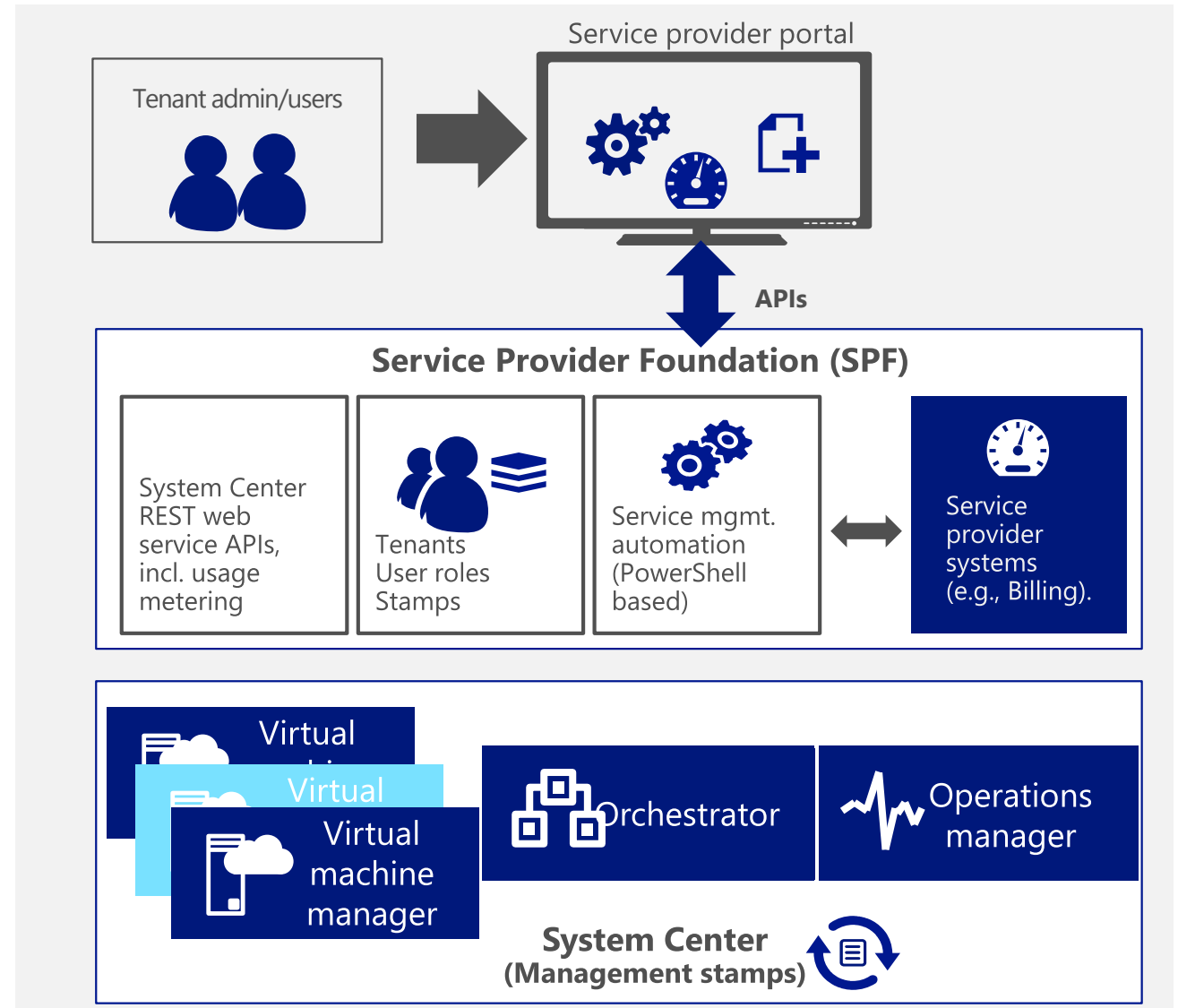## Simplified infrastructure service delivery

In-box service templates and runbooks for System Center components

Integrate existing investments using web-based interfaces to System Center capabilities

Scale management across multiple System Center instances (or "stamps")

Extensible service management automation

Tenant-level resource metering for capacity planning and usage analytics

Multi-tenant cloud infrastructure: service management automation
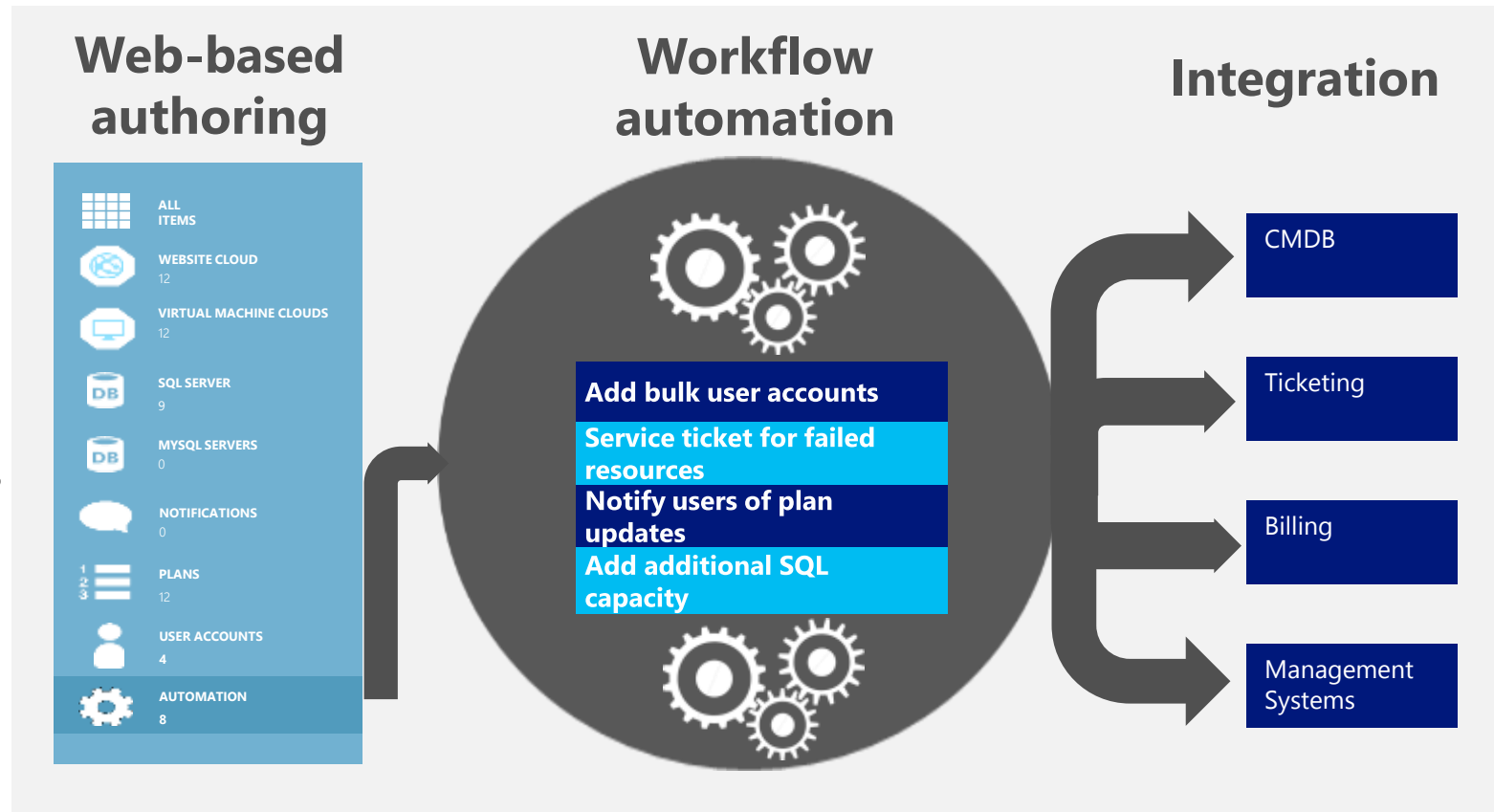
Enable efficient infrastructure delivery and operations

Web-based runbook authoring

Scalable, multitenant-aware automation engine built on PowerShell

Import existing PowerShell scripts and workflows

Integration with existing/ third-party systems

Web-based authoring

ALL ITEMS	
WEBSITE CLOUD	12
VIRTUAL MACHINE CLOUDS	12
SQL SERVER	9
MYSQL SERVERS	0
NOTIFICATIONS	0
PLANS	12
USER ACCOUNTS	4
AUTOMATION	8

Workflow automation

Add bulk user accounts

Service ticket for failed resources

Notify users of plan updates

Add additional SQL capacity

Integration

CMDB

Ticketing

Billing

Management Systems

Delivered by System Center 2012 R2 through the Orchestrator component by exposing the above features as web-service APIs along with SPF integration.

Multi-tenant cloud infrastructure: capacity planning and usage analytics

Granular metering of resource usage by tenant, including CPU, memory & storage

Enable business/ operational insight with tenant-level analytics

Data warehousing & reporting, incl. allocation, utilization & license compliance views

Integration with Cloud Cruiser cost analytics solution for chargeback

Usage metering and analytics are delivered by System Center 2012 R2 through Orchestrator as SPF web-services APIs, usage data is provided by Operations Manager and VMM. Windows Azure Pack surfaces the reports.

Multi-tenant cloud infrastructure: virtual networks

Open, extensible and standards-based solution that delivers flexibility, automation and control
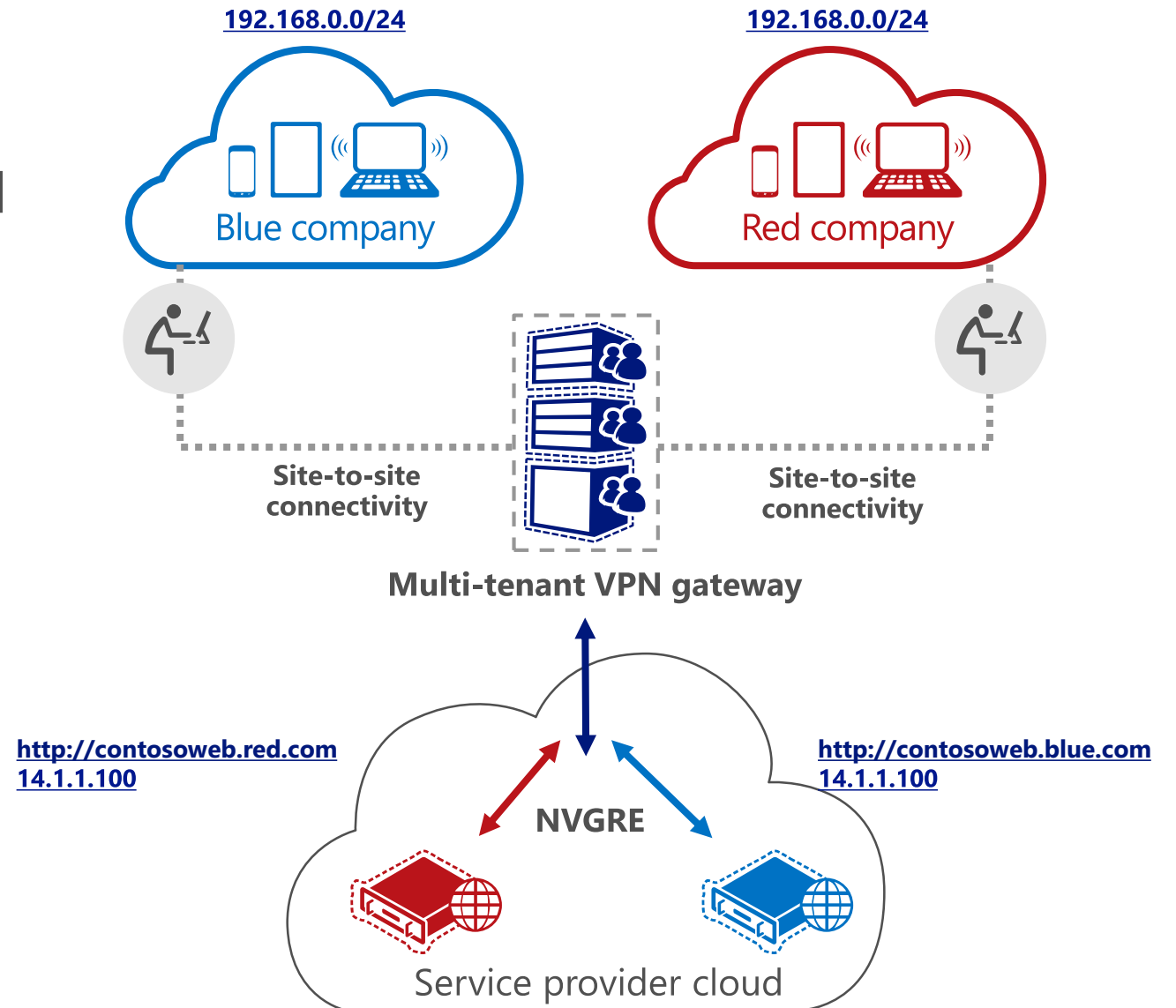
At-scale management of virtual networks on shared physical networks

Provision and configure multi-tenant edge gateway for seamless physical & virtual network connectivity
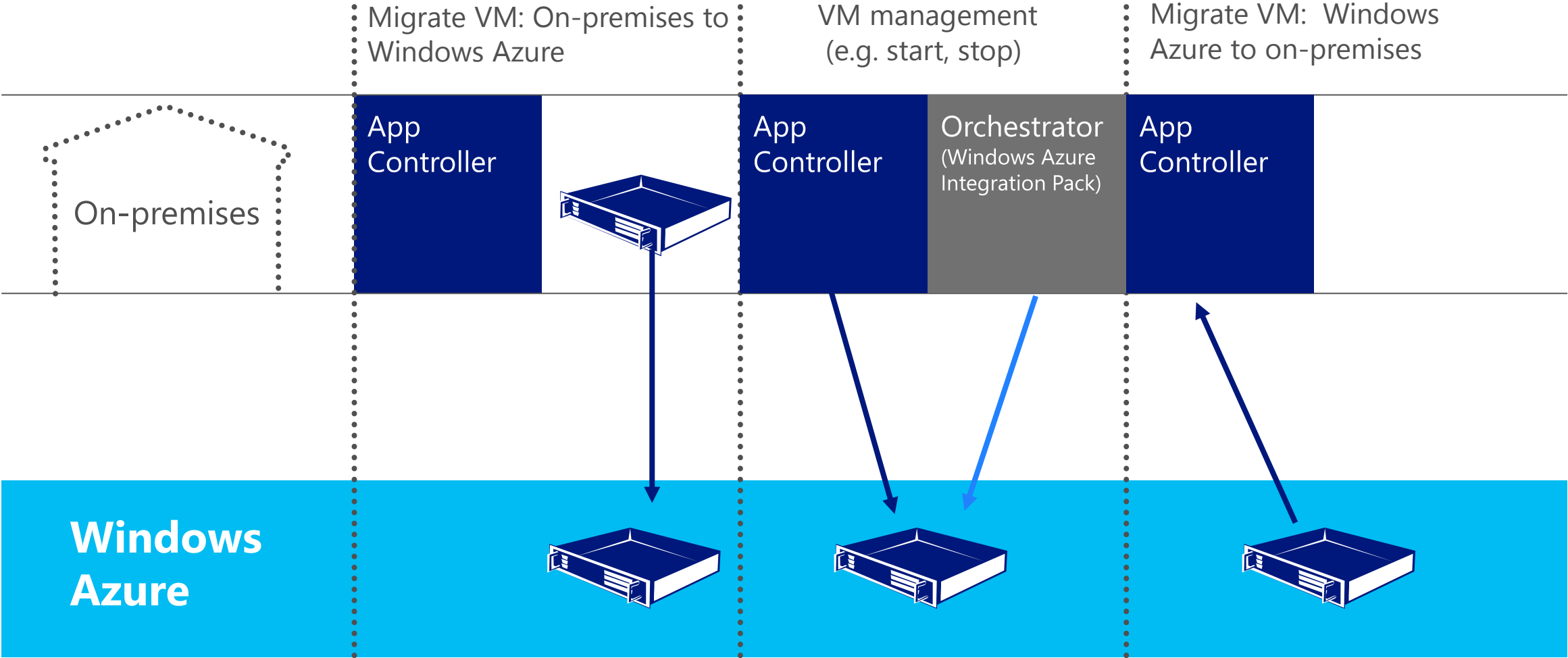
Enable easy remote access into virtualized service provider network for tenants

OMI-based plug-in for automated TOR switch configuration

Partner ecosystem support

192.168.0.0/24

192.168.0.0/24

Blue company

Red company

Site-to-site connectivity

Site-to-site connectivity

Multi-tenant VPN gateway

http://contosoweb.red.com
14.1.1.100

http://contosoweb.blue.com
14.1.1.100

NVGRE

Service provider cloud

Extend familiar System Center to manage Windows Azure Virtual Machines

Migrate VM: On-premises to Windows Azure

VM management (e.g. start, stop)

Migrate VM: Windows Azure to on-premises

On-premises

App Controller

App Controller

Orchestrator (Windows Azure Integration Pack)

App Controller

Windows Azure

Infrastructure monitoring

Comprehensive monitoring of physical, virtual, and cloud infrastructure

IT demands

Monitor diverse environments

Cross platform monitoring:
- Windows Server
- RHEL/SUSE Linux
- Oracle Solaris
- HP-UX & IBM AIX

Cross-platform configuration:
- Windows Server
- Linux/UNIX

Assure physical, virtual, and cloud infrastructure health
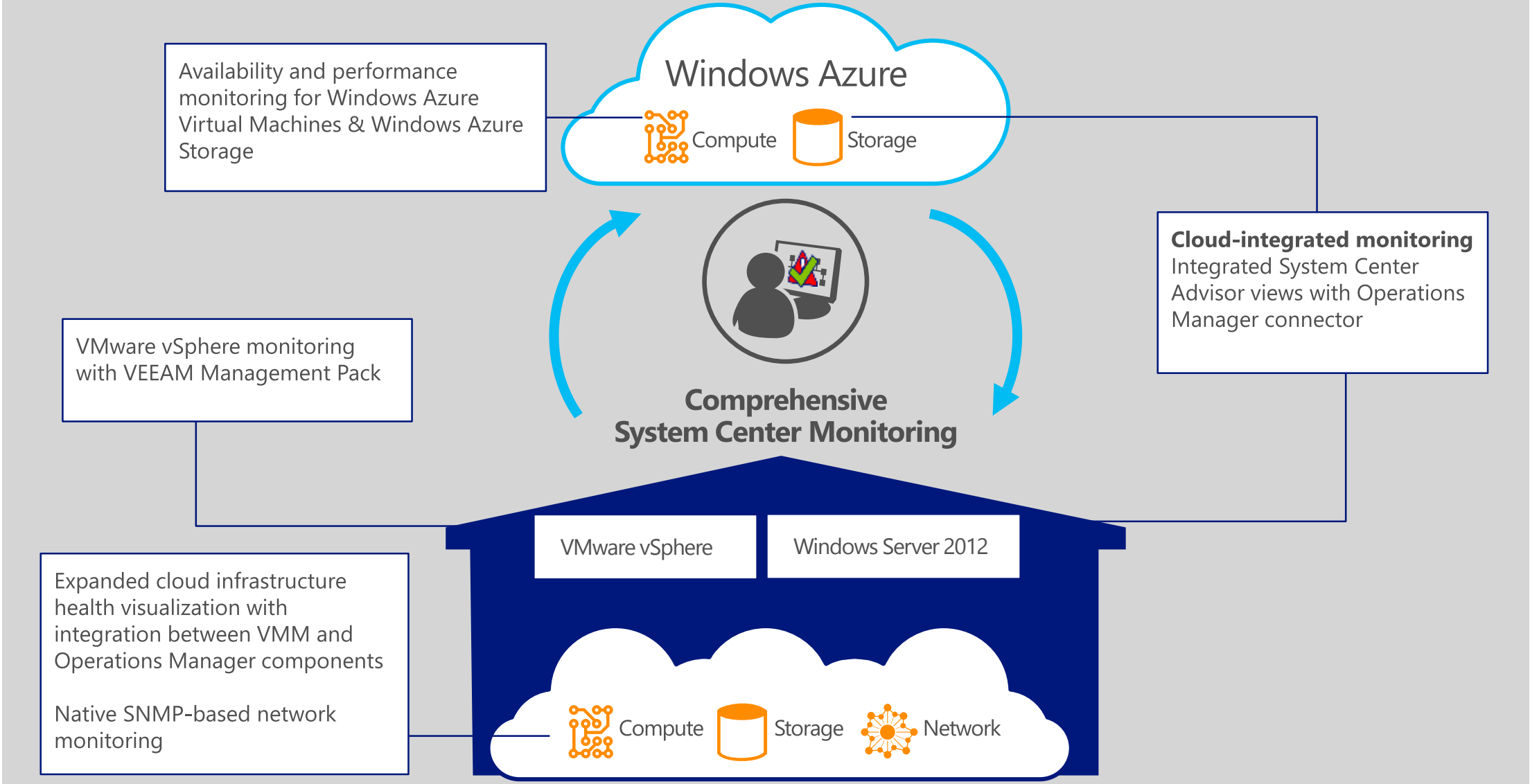
- VMM-Operations Manager connector
- VMware vSphere health with VEEAM Management Pack
- Network topology discovery
- System Center Management Pack for Windows Azure
- AWS Management Pack

Ensure reliable workload configurations

Best practice configuration for Windows Server 2012 with System Center Advisor connector

Deep infrastructure & workload insight

Availability and performance monitoring for Windows Azure Virtual Machines & Windows Azure Storage

Windows Azure

Compute Storage

Comprehensive System Center Monitoring

Cloud-integrated monitoring
Integrated System Center Advisor views with Operations Manager connector

VMware vSphere monitoring with VEEAM Management Pack

VMware vSphere | Windows Server 2012

Expanded cloud infrastructure health visualization with integration between VMM and Operations Manager components

Native SNMP-based network monitoring

Compute Storage Network

Automation and self-service

Application agility while IT retains control

IT demands

Empower app owners while retaining control

Standardized application provisioning with service templates (e.g., SharePoint farms)

Scalable multi-VM tenant services with Windows Azure-consistent user experience (e.g. SQL cluster)

Common management tools for on-premises and cloud

Unified view across clouds with App Controller
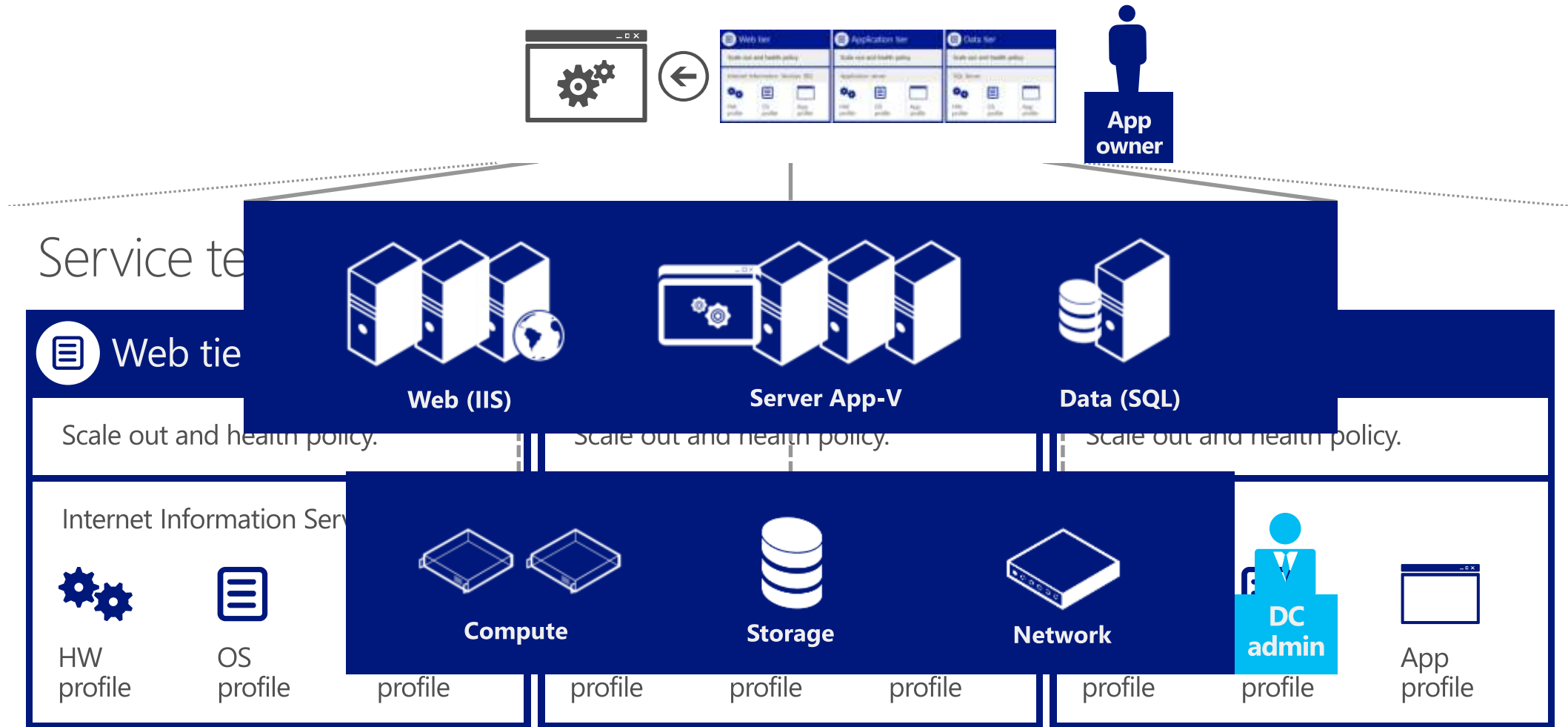
Extend datacenter capacity with common VM templates & VHD images:
- VHDs for first party workloads like SharePoint
- VHDs for Windows Server & Linux

Dynamically expand capacity to support app SLA

Robust automation workflows with Orchestrator and PowerShell

Windows Azure Integration Pack for automated compute & storage deployment

SharePoint Integration Pack

Standardized application provisioning

Service te...

Web tie...

Scale out and health policy.

Internet Information Serv...

HW profile	OS profile	profile

Web (IIS)

Scale out and health policy.

profile   profile   profile

Server App-V

Scale out and health policy.

profile   profile

Data (SQL)

profile   profile   App profile

Compute

Storage

Network

DC admin

App owner

Unified management view across clouds

Flexible delegation with single sign-on

Self-service visibility for application services across on-premises, service provider, and Windows Azure

Easy VM and workload portability from on-premises to Windows Azure (including SharePoint and SQL)

Application performance monitoring

Deep insight into application health

IT demands

Assure LOB application SLA

- .Net and Java monitoring, including line-of-code level traceability
- Integrated transaction monitoring with BlueStripe

Deep application insight

Enable rapid application lifecycle

- Faster issue tracking and remediation with System Center-Visual Studio connector
- Efficient app debugging with Microsoft Monitoring Agent

Integrated dev-ops that spans people, process

Assure great end-user experiences & Microsoft workload health

- Outside-in monitoring with Global Service Monitor
- Best practice configurations for MS workloads with System Center Advisor connector
- Management Packs for Microsoft workloads and third party ISV apps

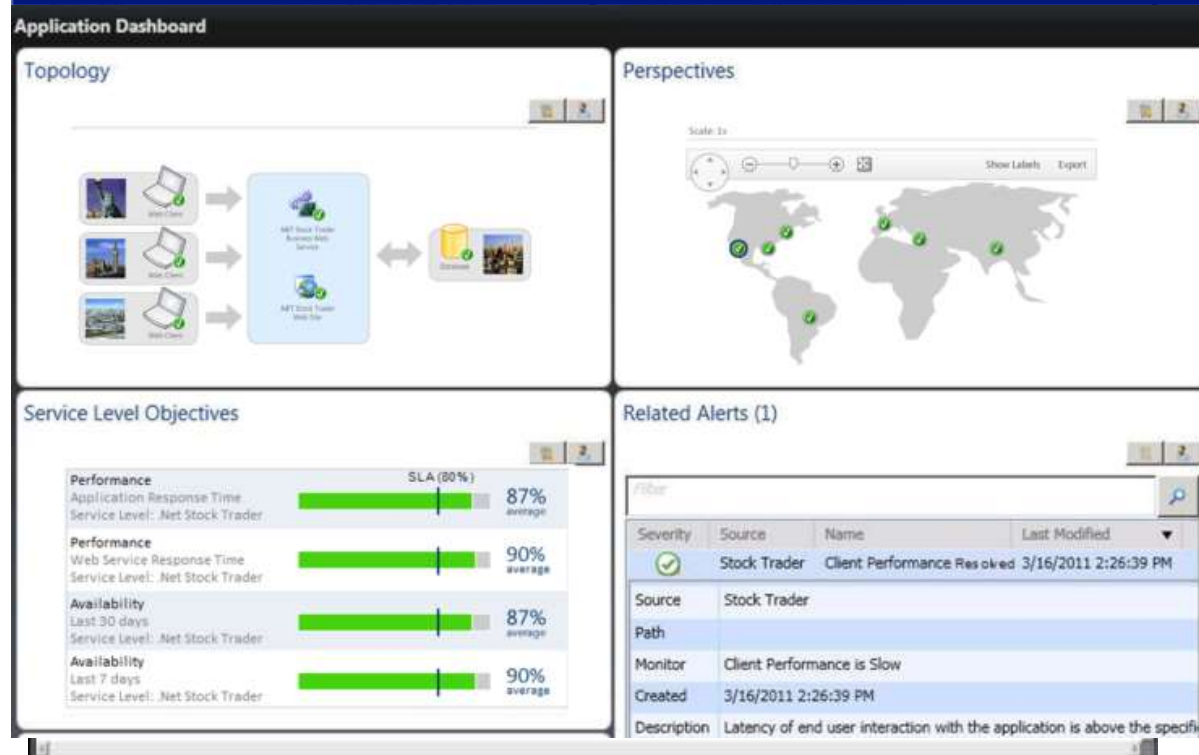Cloud-integrated insight in familiar monitoring

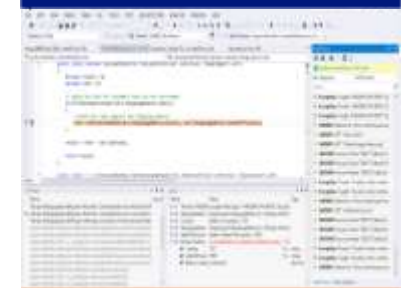# Deep application insight for .NET applications

Discover application dependencies

Comprehensive monitoring & deep application insight help you "get to green"

Triage and remediate

Application Dashboard

Topology

Perspectives

Scale: 1x

Show Labels   Export

Service Level Objectives

		SLA (80%)	
Performance			87%
Application Response Time			average
Service Level: .Net Stock Trader			
Performance			90%
Web Service Response Time			average
Service Level: .Net Stock Trader			
Availability			87%
Last 30 days			average
Service Level: .Net Stock Trader			
Availability			90%
Last 7 days			average
Service Level: .Net Stock Trader			

Related Alerts (1)

Filter

Severity	Source	Name	Last Modified
✓	Stock Trader	Client Performance Resolved	3/16/2011 2:26:39 PM

|	
Source	Stock Trader
Path	
Monitor	Client Performance is Slow
Created	3/16/2011 2:26:39 PM
Description	Latency of end user interaction with the application is above the specifi

Deep application insight for Java applications

Java Tomcat application server support (v5.5, v6 and v7).

Windows & RHEL/SUSE Linux guest OS support.

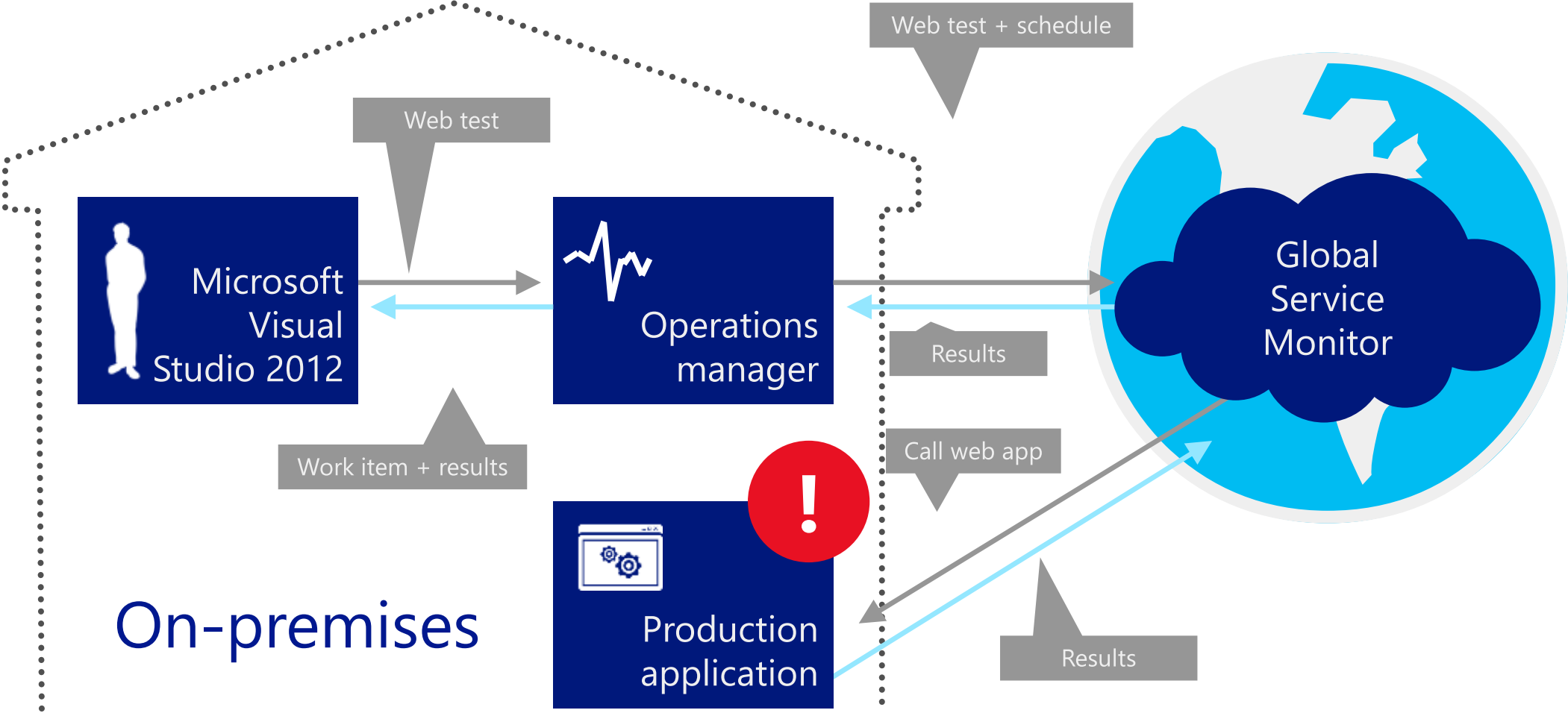Multiple instrumented Java frameworks, incl. web services and database connectors.

Code-level traceability with performance and exception metrics.
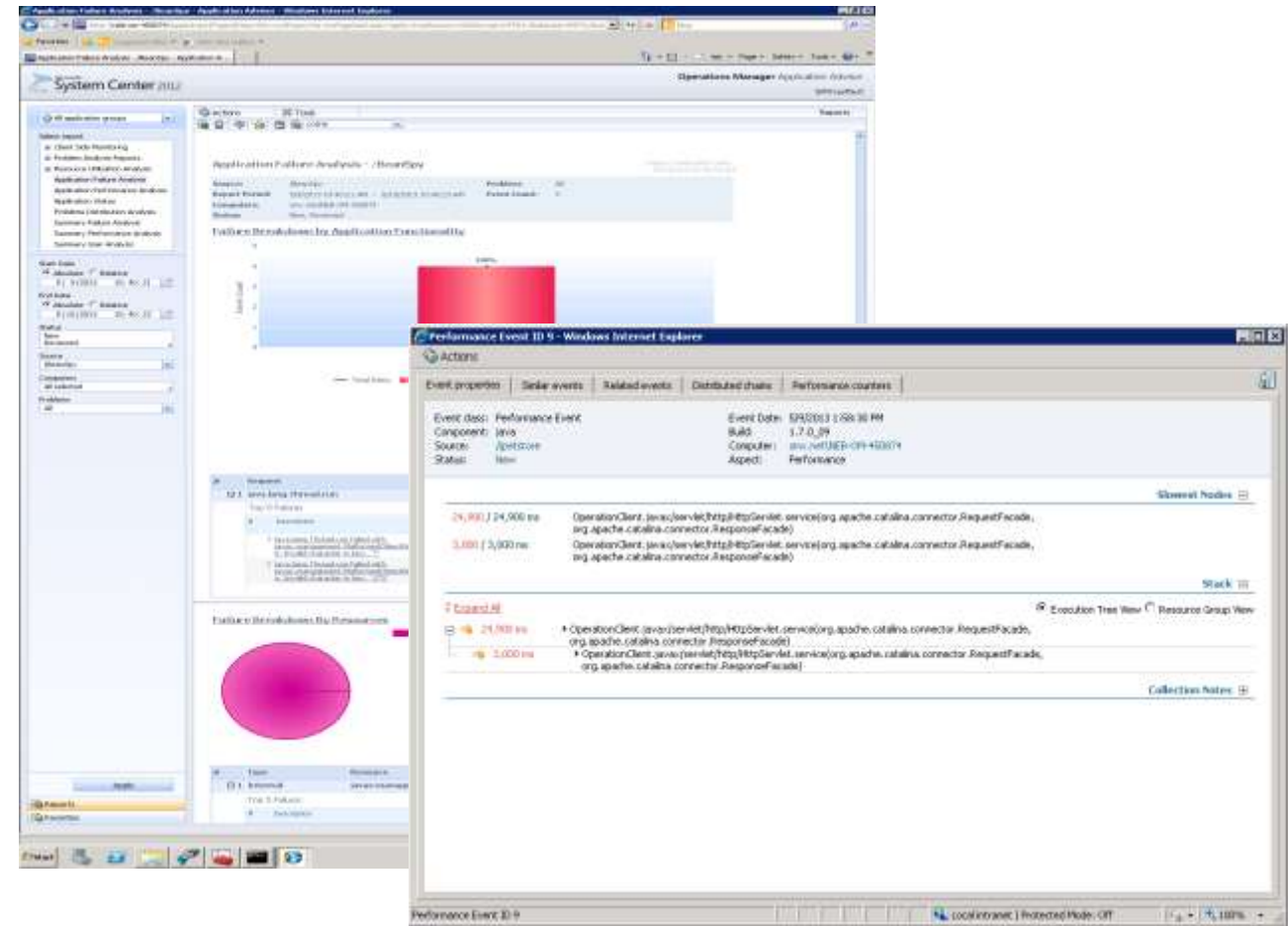
Java EE monitoring-supported platforms

	Supported JEE application servers	Supported operating systems matrix				
		RHEL	SLES	Solaris	AIX	Windows
IBM Webshare	6.1, 7.0	✓	✓		✓	✓
Oracle WebLogic	11gRel1, 10gRel3	✓	✓	✓		✓
Redhat JBoss	4.2, 5.1, 6	✓	✓			✓
Apache Tomcat	5.5, 6.0, 7	✓	✓			✓

Cloud-integrated insight with Global Service Monitor (GSM)

Web test + schedule

Web test

Microsoft Visual Studio 2012

Operations manager

Global Service Monitor

Results

Work item + results

Call web app

Production application

Results

On-premises

Overcoming the dev-ops disconnect

Comprehensive monitoring

Deep application diagnostics

Isolation of root cause with code level insight

Rich tool-driven collaboration

Dev

Ops
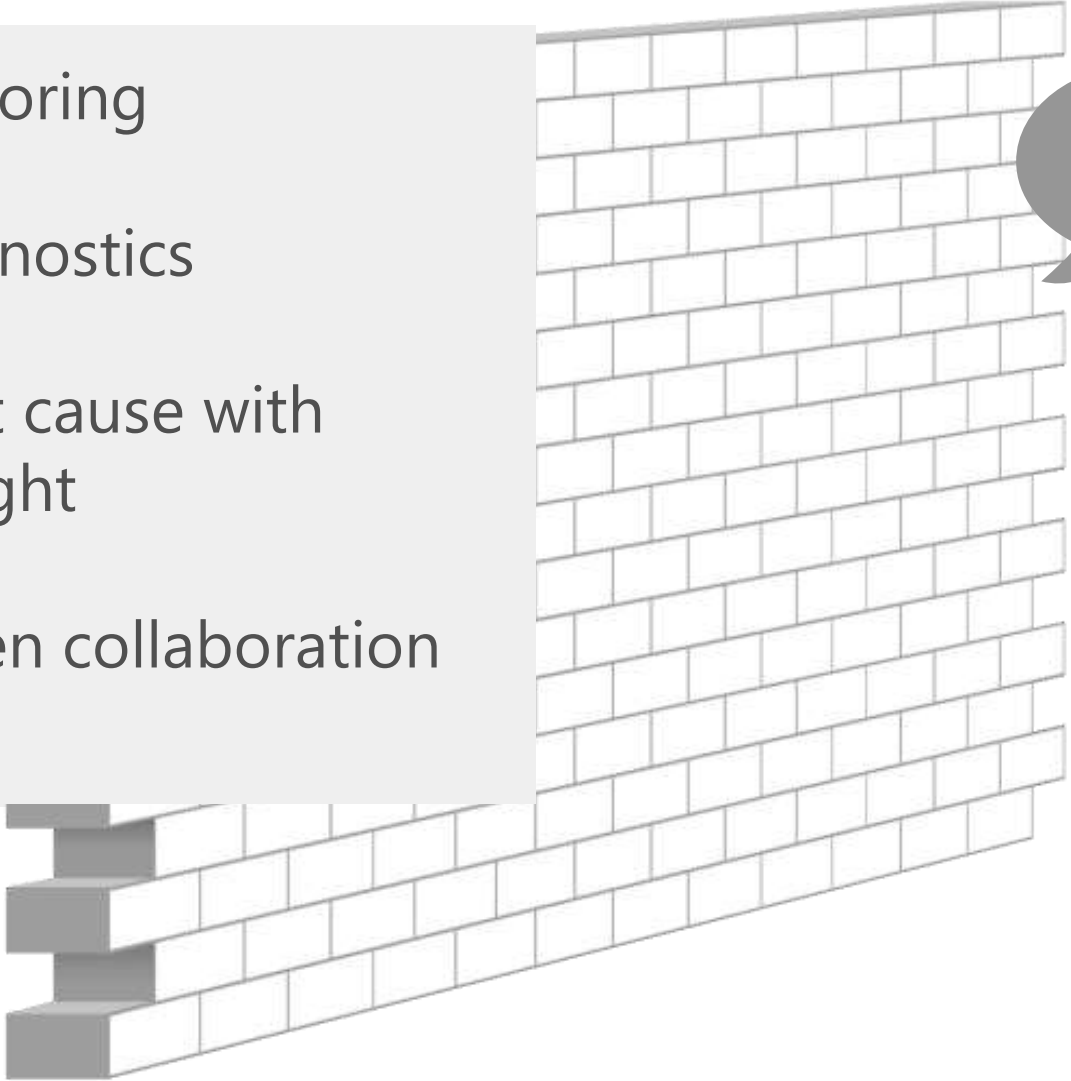
IT service management
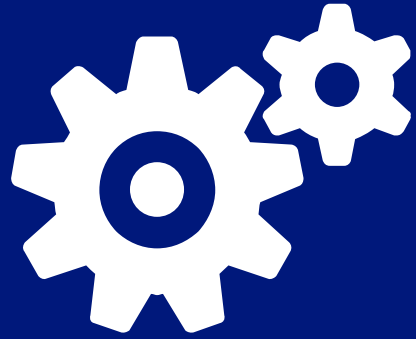
Flexible service delivery

IT demands

Enable easy publishing & consumption of IT services

- Service catalog, including support for SharePoint 2013
- Cloud Service Process Pack (CSPP)
- Flexible service offerings and service request templates

Integrate people, process and knowledge

- Automated workflows for incident, problem, change & release management
- Configuration management database (CMDB)

Efficient resource utilization & SLA tracking

- VM-level metering and price sheets
- SLA reporting data warehouse
- Integration with Cloud Cruiser cost analytics solution for chargeback

Flexible service delivery

Provision service

Access service catalog

Runbooks

Provision service

Templates

CMDB

Services

VMs

Hosts

Users

Enables standardization and compliance

Detach Storage

Detach Network Adapter

Deliver business and operational insight with chargeback
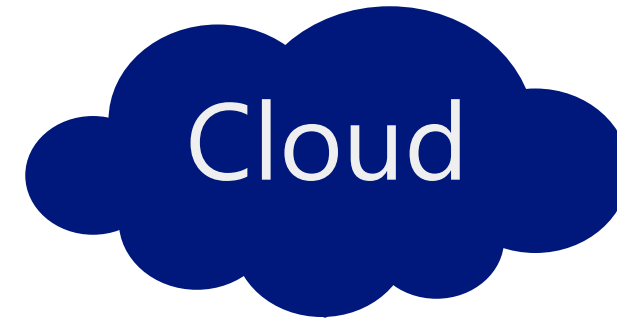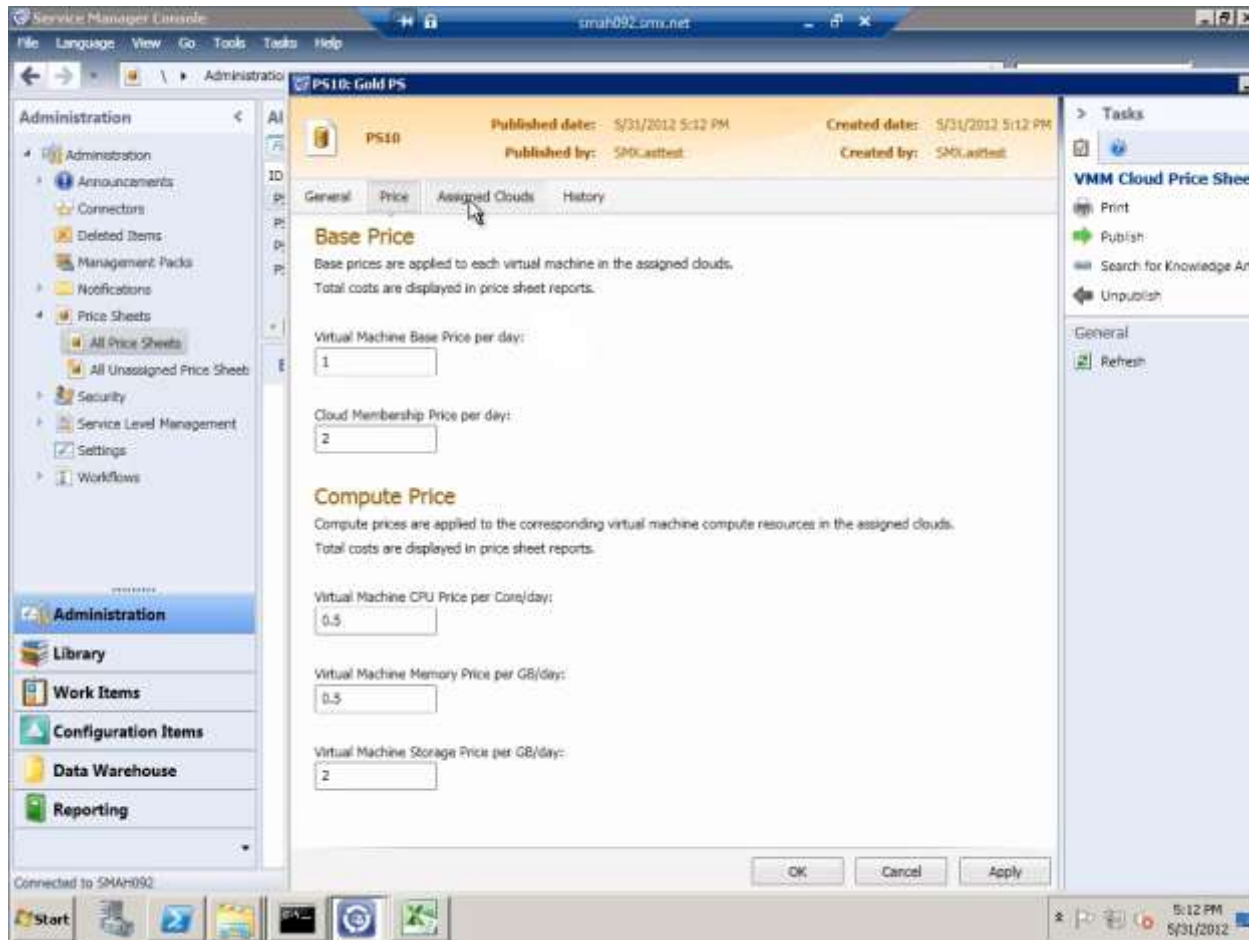
Cloud

Price Sheet

$ Virtual Machine/day

$ Cloud Membership/day

$ Virtual Machine CPU Core/day

$ Virtual Machine Memory GB/day

$ Virtual Machine Storage GB/day

Why choose System Center 2012 R2

Enterprise-class

Best-of-breed management for Windows Server and Microsoft workloads

Multitenant virtual networking, including edge gateway provisioning to bridge physical and virtual networks

Support for VM connectivity into virtual Fibre Channel SAN

Multi-hypervisor support, including Hyper-V, VMware, and Citrix

Robust open source support: Dynamic Memory for Linux, Unix/ Linux monitoring and configuration

Unified monitoring for on-premises and Windows Azure infrastructure

Simple and cost-effective

In-box service templates and runbooks for System Center components

Web-based interfaces to System Center capabilities to help integrate existing investments

Standards-based top-of-rack network switch configuration

Windows Server file-based storage and Storage Spaces support

Extensible service management automation and integration

Workload protection & recovery across datacenters with Windows Azure Hyper-V Recovery Manager

Application focused

Easy VM portability and management between Windows Server and Windows Azure

Deep .NET and Java application monitoring and diagnostics

Standardized app provisioning with service templates

Integrated dev-ops with System Center-Visual Studio connector

Cloud-integrated app and workload insight with Global Service Monitor and System Center Advisor

Management Packs with extensive built-in knowledge for Microsoft Exchange, SQL, SharePoint

Appendix

Microsoft

System Center 2012 R2: Unified management for the Cloud OS

Enterprise-class

Simple and cost-effective

Application focused

1. Multi-hypervisor private clouds
2. Multitenant virtual networks
3. SAN & file-based storage management
4. Robust Linux support
5. Process automation & integration

6. APM for .NET and Java apps
7. Cloud-integrated monitoring & dev-ops
8. VM portability across clouds
9. Service Provider Foundation
10. Service templates

Top System Center 2012 R2 features

What's new in System Center 2012 R2

Infrastructure provisioning

	Automated Hyper-V cluster upgrades w/o downtime using Live Migration	Tenant-level usage metering and reporting	Storage Spaces support
Snapshot running VMs without downtime	Dynamic Memory resize for running VMs	ODX support for faster VM provisioning from templates	Virtual Fibre channel SAN connectivity support	File-level Linux VM backups, restore full Linux VM
Dynamic VHDX resize	Dynamic Memory support for Linux VMs	Service templates for DPM, Service Manager, SPF and Ops. Mgr.	Runbook based configuration for all System Center components

Infrastructure monitoring

Native SNMP monitoring and IPv6 support	VMM integration with Operations Manager for fabric health visualization	System Center Advisor connector for Operations Manager	System Center Management Pack for Windows Azure

Automation and self-service

Orchestrator Integration Pack for SharePoint (new)	Service management automation with REST APIs & PowerShell	Updated System Center Integration packs

IT Service Management

SharePoint 2013 support for Service Manager portal

Application performance monitoring

System Center Advisor connector for Operations Manager	Java APM	Microsoft Monitoring Agent

Virtual Machine Manager

SYSTEM CENTER 2012 R2	BENEFITS
• Multi-hypervisor support	• Preserve and optimize existing infrastructure investments
• Multitenant isolation with virtual networks,	• Improve infrastructure SLAs
• Multitenant edge gateway provisioning to bridge physical and virtual networks	• Reduce operational expense
• Storage management, incl. VM connectivity into fiber channel SANs & Storage Spaces support	• Flexible provisioning in shared multitenant environments
• Service templates	• End to end management of virtualized and cloud datacenter resources
• Server application virtualization	• Save time with standardized service creation and upgrades
• Dynamic Optimization & Power Optimization	• Enable consistent management experiences between Windows Server and Windows Azure environments
• Windows-Azure consistent VM management and virtual network APIs	

Operations Manager

SYSTEM CENTER 2012 R2	BENEFITS
• .NET and Java Application performance management • Monitoring across on-premises and Windows Azure (incl. System Center Management Pack for Windows Azure) • Improved UNIX and Linux support • Network monitoring • Customizable dashboards • Global Service Monitor • Integrated System Center Advisor views • Integrated dev-ops • Management packs for Microsoft workloads and third party ISV apps	• Comprehensive physical, virtual and cloud infrastructure monitoring using familiar console • Enhanced dev-ops collaboration and decreased time to resolution with deep application insight • Improve insights with personalized reporting • Cloud-integrated insight to assure predictable application and workload SLA

Orchestrator

SYSTEM CENTER 2012 R2

- Workflow automation
- Enable integration of third-party management tools
- Simple design of custom workflow runbooks
- Updated Integration Packs (IP), incl. Windows Azure IP & SharePoint IP
- Service Provider Foundation (SPF)
    - Enable aggregation of multiple infrastructure stamps
    - REST-based web APIs for System Center components
    - Service management automation including built-in PowerShell workflows and REST APIs

BENEFITS

- Lower costs and increase reliability by automating repetitive tasks
- Simplify heterogeneous datacenter management
- Have IT resources focus on higher business impact projects
- Enable multitenant infrastructure provisioning and custom automation
- Enable service provider infrastructure to be easily consumed by enterprises

App Controller

SYSTEM CENTER 2012 R2	BENEFITS
• Role-based access for the app owner	• Increase app owner agility with self-service interface
• Single view of delegated resources across private and public clouds	• Save time by bringing together all delegated infrastructure
• Deploy and manage services in addition to virtual machines	• Improve reliability by deploying template-based services
• VM portability between Windows Server and Windows Azure	• Flexible datacenter capacity management
• Expose service provider infrastructure to enterprises through SPF integration	• Unified view across on-premises, service provider and Windows Azure infrastructure

Service Manager

SYSTEM CENTER 2012 R2	BENEFITS
• Service catalog • Self-service request portal • Release and SLA management • Data warehousing and reporting • Cloud Service Process Pack (CSPP) • Chargeback metering and price sheets for VMs • SharePoint 2013 support for service request portal	• Increase organizational agility with customized service offerings • Improve corporate compliance through process management • Improve business intelligence through customized reporting and basic chargeback

Data Protection Manager

SYSTEM CENTER 2012 R2

- Centralized management of servers with Data Protection Manager

- Role-based administration

- Item-level recovery for virtual machines

- Best of breed protection and recovery for Microsoft workloads (Exchange, SharePoint, SQL)

BENEFITS

- Save time with consolidated management server console

- Secure access for the broader IT team

- Quicker time to recovery

- Granular protection for Microsoft workloads

Configuration Manager

SYSTEM CENTER 2012 R2	BENEFITS
• Improved settings management with remediation • Integrated antimalware with System Center Endpoint Protection • Delegated administration • Linux/Unix configuration support	• Reduce compliance complexity • Improve support for virtualized environments • Reduce cost through integrated security • Cross-platform configuration