Windows Server 2016 Hosting Opportunities

Attila Macskasy,
CEE Hosting, Technical

November 8, 2016
Kiev

Microsoft

**Block «Windows Server 2016":
Licensing, scripts, demonstration.
(Alexander Ushakov,
Attila Macskasy, Microsoft;
Dmitry Rachitsky, MEGATRADE)**

МЕГАТРЕЙД
СПЕЦІАЛІЗОВАНИЙ ІТ-ДИСТРИБУТОР

Megatrade – very professional/impressive! Thank you!

Olga Olifirenko

Приглашаем всех SPLA-партнеров на Мегатрейд & Microsoft Hosting Day3

ПРОГРАММА МЕРОПРИЯТИЯ:

09:00 – 10:00 Регистрация, приветственный кофе
10:00 – 10:10 Приветственное слово (Владимир Тимофеев, Мегатрейд)
10:10 – 10:40 Microsoft & Megatrade FY 17 Strategy (Александр Ушаков, Microsoft)
10:40 – 11:00 Microsoft SAM (Юлия Колесниченко, Microsoft)
11:00 – 12:30 Блок «Windows Server 2016»: Лицензирование, сценарии, демонстрация. (Александр Ушаков, Attila Macskasy, Microsoft; Дмитрий Рачицкий, Мегатрейд)
12:30 – 13:00 Кофе-брейк
13:00 – 14:30 Блок «Кейсы и сценарии для SPLA-провайдеров» (Олифиренко Ольга, Мегатрейд; Александр Ушаков, Microsoft)
14:30 – 15:00 SPUR Updates (Олифиренко Ольга, Мегатрейд)
15:00 – 16:30 Фуршет, неформальное общение

Hosting development areas in CEE – FY17

Leveraging current Cloud Platform: Windows Azure Pack (or Hyper-V only) with new features of Windows Server 2016. Extending service provider offerings with SQL and Azure CSP. Preparing for Azure Stack releases by getting familiar with Windows 2016 and Azure CSP.
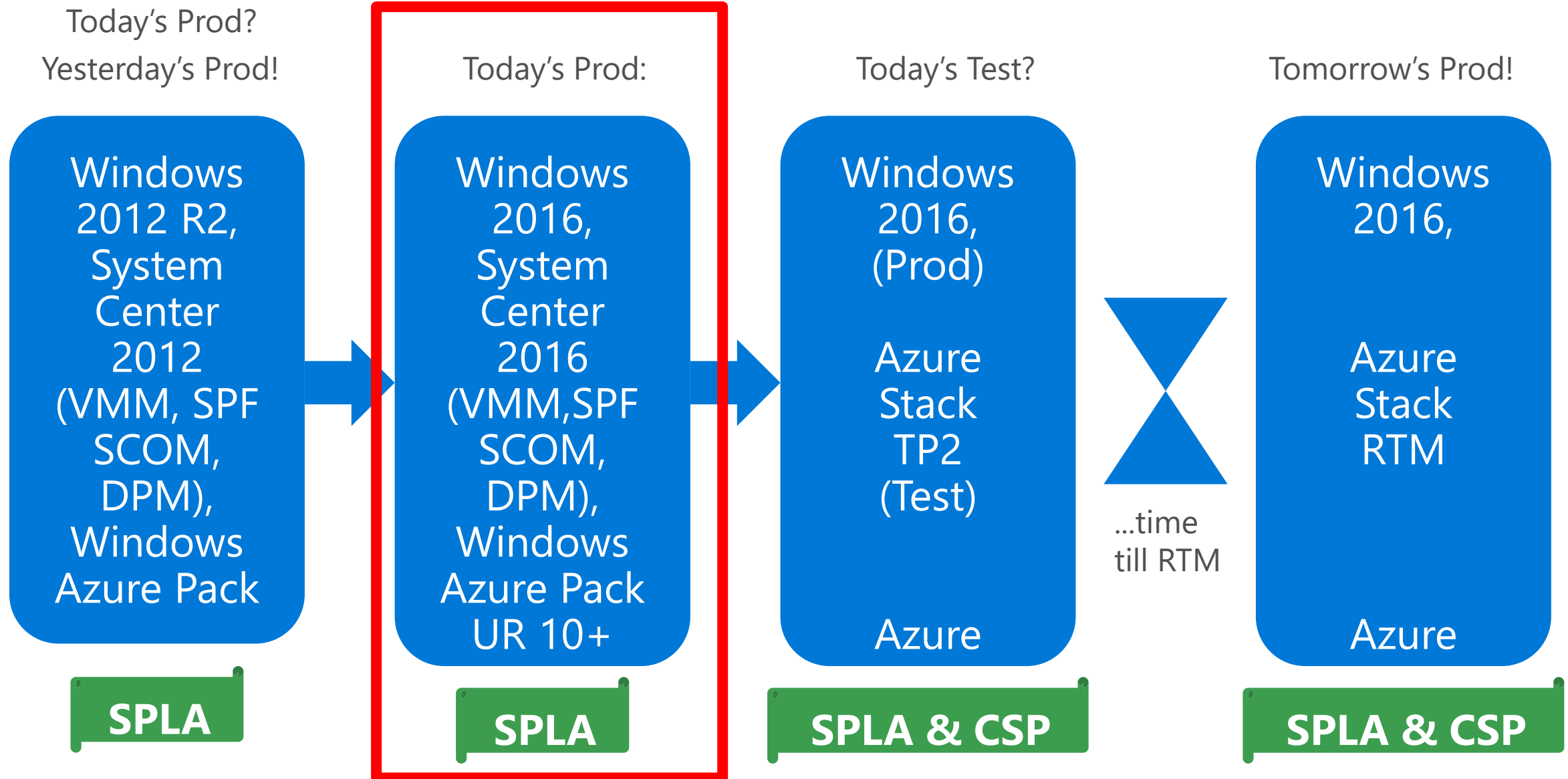
1# Leverage Windows 2016 new features (Hyper-V...ow – try it!)	**2# SQL 2016 and DBaaS shared, multi-tenant (great margin product)**

1# Infrastructure cost savings ($)

Storage Spaces Direct (HA local disks)

Nano Server (small footprint Hyper-V)

2# New unique hosted offerings (+)

Shielded VMs (secure, encrypted VMs)

Containers – great margin product

1# Deploy SQL 2016 **multi-tenant** DBaaS offering

2# Create LOB **application templates** bundled with SQL server, multiple **isolated** VMs per tenant – w or w/o mgmt.
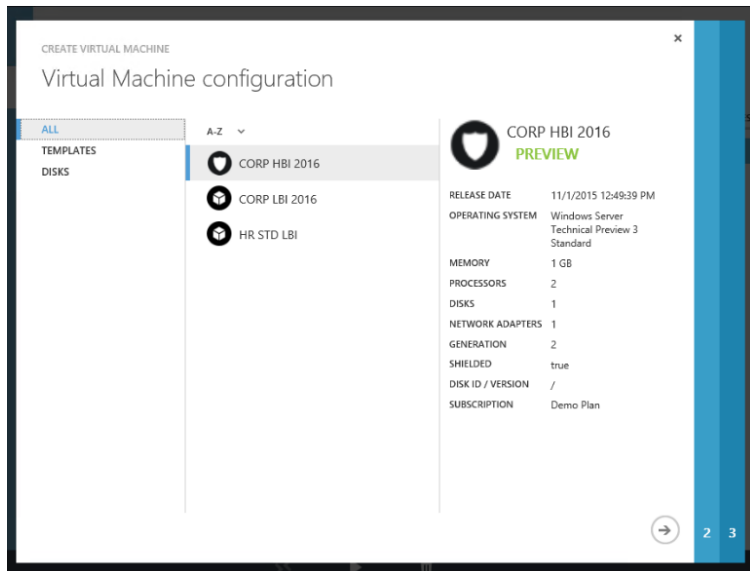
Learning roadmap with Megatrade...

Today's Prod?
Yesterday's Prod!

Windows 2012 R2, System Center 2012 (VMM, SPF SCOM, DPM), Windows Azure Pack

SPLA

Today's Prod:

Windows 2016, System Center 2016 (VMM,SPF SCOM, DPM), Windows Azure Pack UR 10+

SPLA

Today's Test?

Windows 2016, (Prod)

Azure Stack TP2 (Test)

Azure

SPLA & CSP

...time till RTM

Tomorrow's Prod!

Windows 2016, Azure Stack RTM

Azure

SPLA & CSP

Windows Azure Pack – Windows 2016

https://blogs.technet.microsoft.com/scvmm/2016/05/25/update-rollup-10-for-windows-azure-pack-is-now-available/

https://support.microsoft.com/en-us/kb/3158609

https://blogs.technet.microsoft.com/datacentersecurity/2016/03/23/creating-shielded-vms-as-a-tenant/

TN https://blogs.technet.**microsoft**.com/scvmm/2016/05/25/update-rollup-10-for-windows-azure-pack-is-now

TN Update Rollup 10 for Windo... ✕

Server & Tools Blogs > Server & Management Blogs > System Center: Virtual Machine Manager Engineering Blog

All About Windows Server	Cloud Platform Blogs	Datacenter Management	Client Management	Virtualization, VDI & Remote Desktop	File & Storage & High Availability

System Center: Virtual Machine Manager Engineering Blog

Update Rollup 10 for Windows Azure Pack is now available

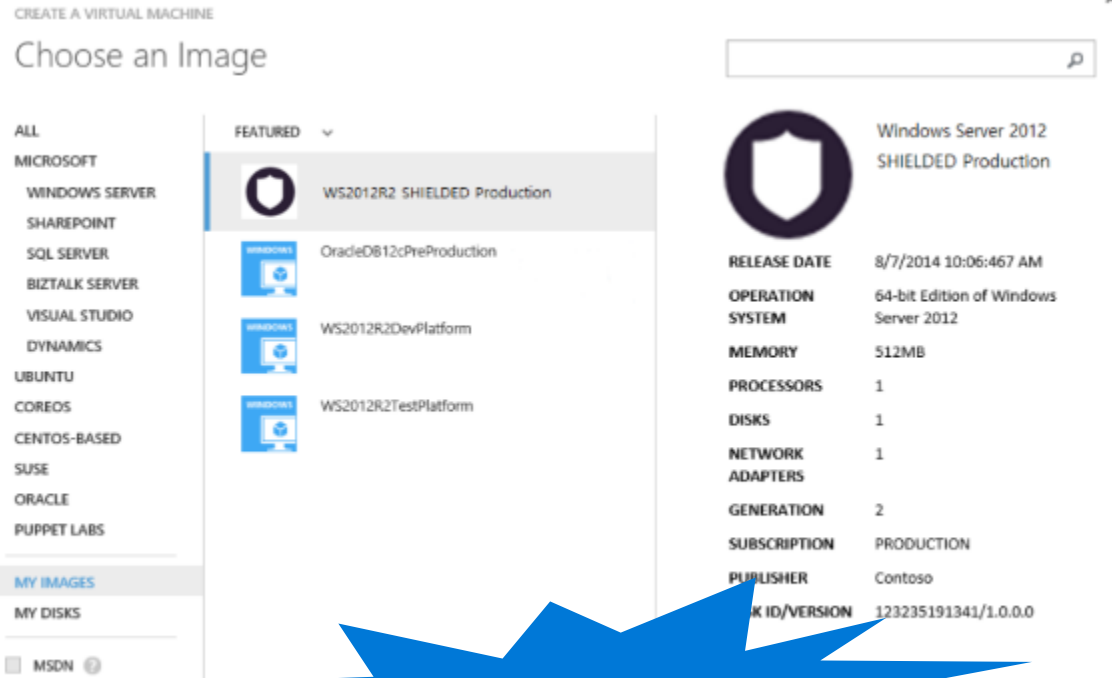May 25, 2016 by J.C. Hornbeck [MSFT] // 5 Comments

★★★★★

Share 31   3   18

Update Rollup 10 for Windows Azure Pack (WAP) is now available to download.

Issues that are fixed in this update rollup

- Issue 1: Windows Server 2016 only: Support for Encryption Supported VMs. Windows Server 2016, Virtual Machine Manager and Service Provider Foundation provide support for Encrypted Supported VMs, now WAP provides support for the three type of VMs in Windows Server 2016: regular VMs, Shielded VMs, and Encryption Supported VMs.

- Issue 2: Windows Server 2016 only: Fix to incorrect Format of volume Signature in PDK File downloaded through WAP.

- Issue 3: When a tenant updates a VM Size, the Hardware Profile ID is passed along to the SPF/VMM Virtual Machine Update event, allowing custom runbooks to change other properties as necessary.

- Issue 4: Fix to Virtual Network property labels in the Quota page. The quotas for "Site-to-Site VPN" and "External IP addresses" labels in the Admin Portal VM Resource Provider are misleading because they read "per network." They actually are "per subscription."

- Issue 5: Fix: When you update the VM Cloud Resource Provider, a duplicate Port setting is added leading ManagementOData to fail and return an error message that reads, "An item with the same key has already been added."

- Issue 6: Ability for the tenant user to add a network adapter to a VM while the VM is running. In UR 9.1 and previous versions, new NICs could be added only after the VM was stopped.

- Issue 7: Ability for the WAP Admin to include a SQL Server into multiple availability groups for HA configurations.

Blog overview and first production offers below

yesterday

https://blogs.technet.microsoft.com/hybridcloudbp/
2016/11/07/shielded-vms-in-windows-server-2016/

https://customers.microsoft.com/en-
US/story/brightsolid-offers-its-clients-cutting-edge-
security-technology-with-windows-server-2016

1# Windows Server 2016
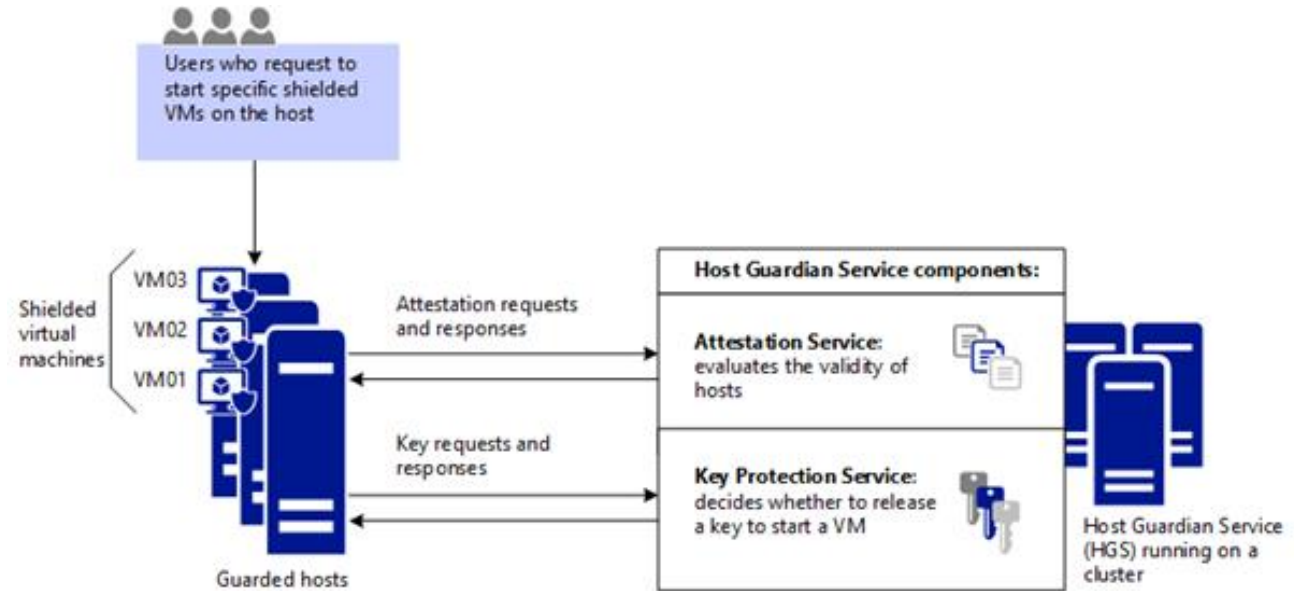
Secure IaaS

Added Value

Secure platform for hosting sensitive data and workloads.
The keys to decrypting the workload are held only by the customer.

Businesses have the confidence of knowing that their data will remain private

Offering Content

Overview of Guardian Fabric and Shielded VMs Features
Setup and Deployment Guardian Fabric and Shielded VMs

*To help protect against compromised fabric, Windows Server 2016 Hyper-V introduces shielded VMs. A shielded VM is a generation 2 VM (supported on Windows Server 2012 and later) that has a virtual TPM, is encrypted using BitLocker and **can only run on healthy and approved hosts in the fabric.** Shielded VMs and guarded fabric enable cloud service providers or enterprise private cloud administrators to provide a more secure environment for tenant VMs.*
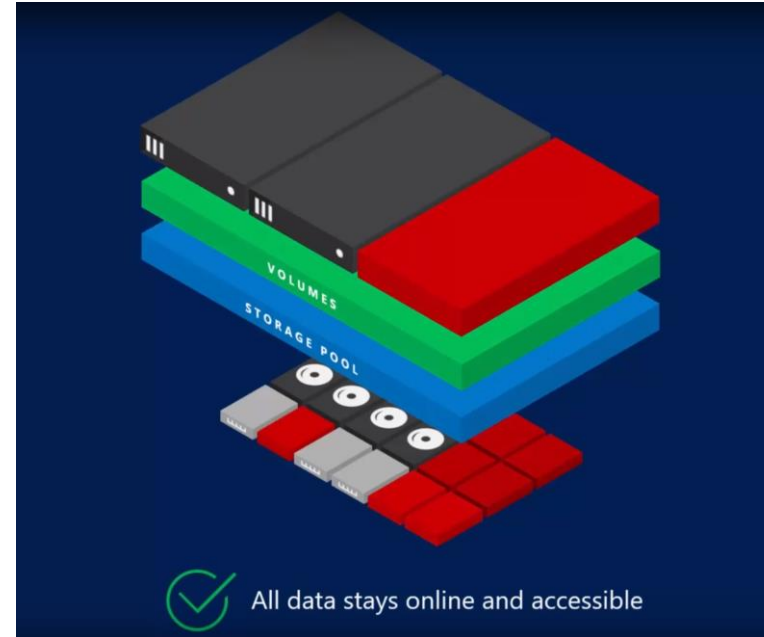
Guarded Fabric and Shielded VMs

Cost-Effective Reliable Storage

Added Value

highly available (HA) storage systems using cheaper local storage that are easier to maintain.

Offering Content

Overview of Storage Spaces Direct Features
Setup and Deployment of Storage Spaces Direct

Storage Spaces Direct uses industry-standard servers with local-attached drives to create highly available, highly scalable software-defined storage at a fraction of the cost of traditional SAN or NAS arrays. Its converged or hyper-converged architecture radically simplifies procurement and deployment, while features like caching, storage tiers, and erasure coding, together with the latest hardware innovation like RDMA networking and NVMe drives, deliver unrivaled efficiency and performance.

Storage Spaces Direct

Platform for Modern Apps

Added Value

Application Consolidation from multiple **VMs to** multiple **containers.**

Lower management overhead as there is no virtualized hardware.

Enables customers to distribute their applications into services and gain high speed standardized deployments consistently.

Offering Content

Setup of Windows Containers
Deploying Application Workloads to Windows Containers
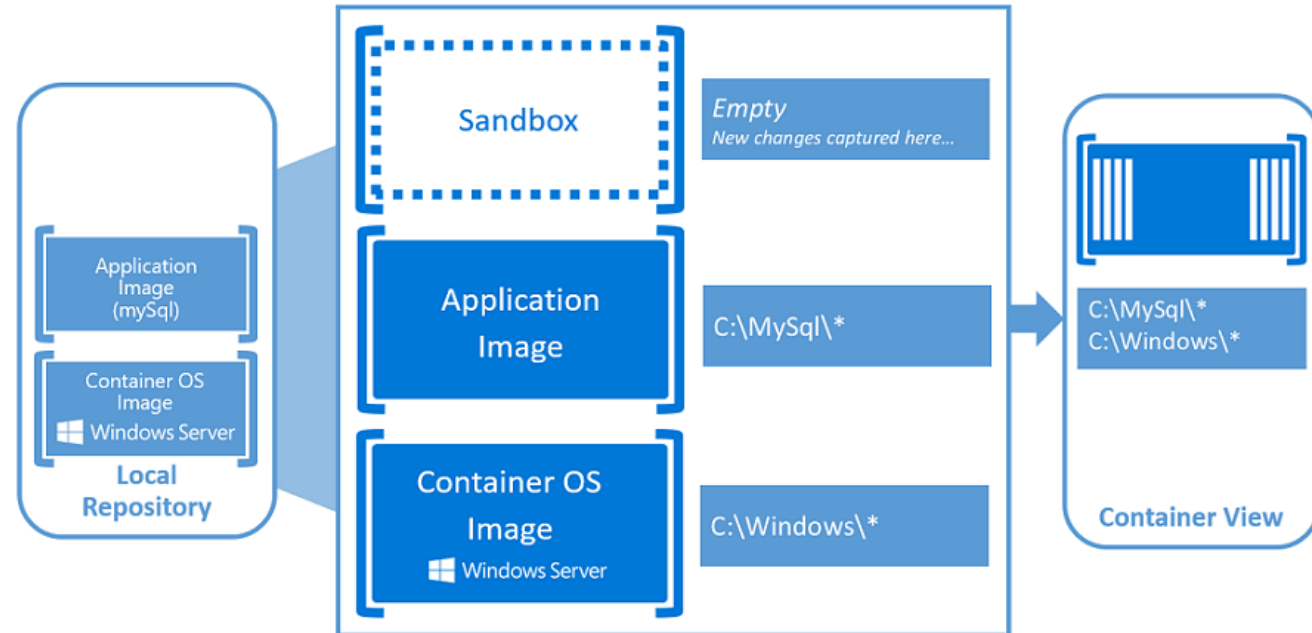
Containers are an isolated, resource controlled, and portable operating environment. Basically, a container is an isolated place where an application can run without affecting the rest of the system and without the system affecting the application. Containers are the next evolution in virtualization.
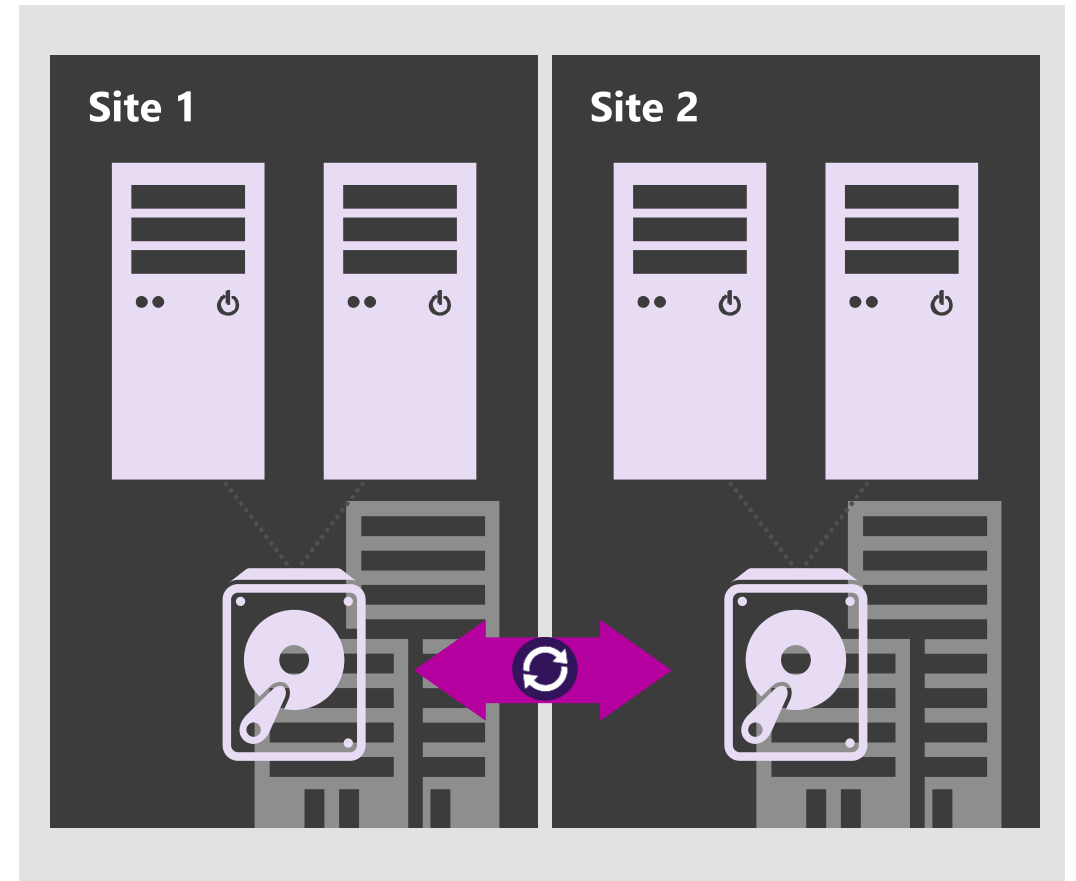
[Windows Containers](#)

Storage Replica (Datacenter edition) –
this is new OS level technology different from Hyper-V Replica

Synchronous replication: Storage agnostic mirroring of data in physical sites with crash-consistent volumes ensuring zero data loss at the volume level.

Increase resilience: Unlocks new scenarios for metro-distance cluster to cluster disaster recovery and stretch failover clusters for automated high availability.

Flexible: Server to server, cluster to cluster, and stretch cluster. Local disks, Storage Spaces Direct, clustered disks. NTFS, REFS, CSVFS. TCP, RDMA. **Synchronous and asynchronous.**
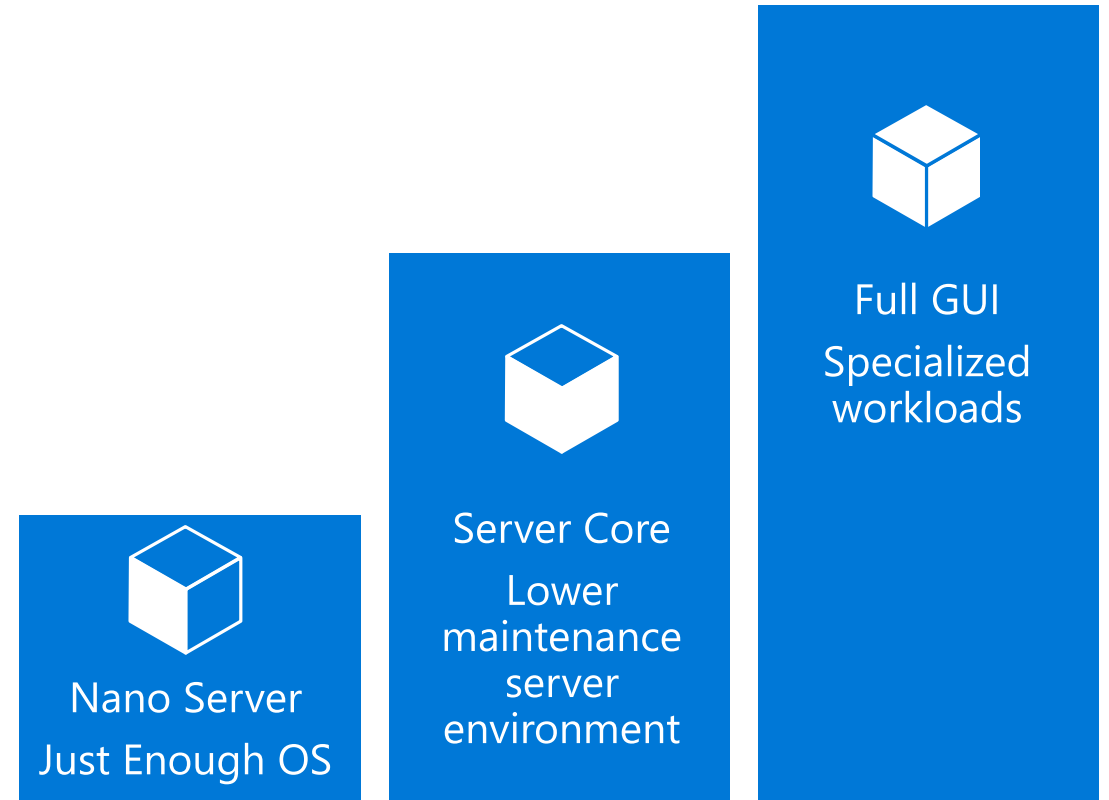
Streamlined management: Graphical management for individual nodes and clusters through Failover Cluster Manager and Azure Site Recovery. Full PowerShell and SMAPI support.

Site 1   Site 2

Nano Server Hyper-V host

Optimized Hyper-V image
Lower attack surface

Nano Server
Just Enough OS

Server Core
Lower
maintenance
server
environment

Full GUI
Specialized
workloads

Nano Server: Next step in our cloud journey

Zero-footprint model

Server roles and optional features live outside of Nano Server

Standalone packages that install like applications

Key roles & features

Hyper-V, Storage (SoFS), Clustering

IIS and DNS Server available in TP4

Core CLR and ASP.NET 5

Full Windows Server driver support

Antimalware optional package

System Center VMM and OM agents supported

Software Defined Networking (Datacenter)

Network controller

Central control plane
Fault tolerant
Network monitoring

Virtual networking

BYO address space
Distributed routing
VXLAN and NVGRE

Network security

Distributed Firewall
Network Security Groups
BYO Virtual Appliances

Robust gateways

M:N availability model
Multi-tenancy for all modes of operation
BGP Transit Routing

Software load balancing

L4 load balancing (N-S and E-W) with DSR NAT
For tenants and cloud based infrastructure

Data plane advancements

Performance: 10G, 40G, and beyond!
RDMA over Virtual Switch

Consistency with Azure in UI, API, and Services

Key Windows Server 2016 RDS investments

Increased performance and app compatibility – graphics improvements

Enhanced scale management – **HA connection broker,** shared SQL connections

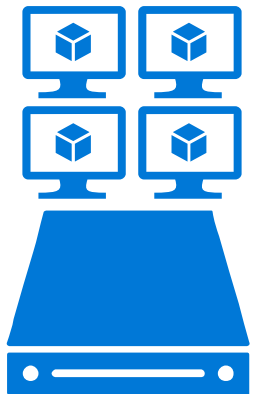Optimized for **cloud** – efficient and secure architecture

DaaS

Containers
A new approach to build, ship, deploy, and instantiate applications
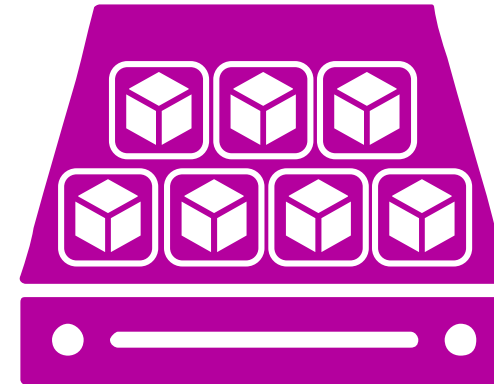
Physical

Applications traditionally built and deployed onto physical systems with 1:1 relationship

New applications often required new physical systems for isolation of resources

Virtual

Higher consolidation ratios and better utilization

Faster app deployment than in a traditional, physical environment

Apps deployed into VMs with high compatibility success

Apps benefited from key VM features; i.e., live migration, HA

Package and run apps within **containers**

Physical/Virtual

Key Benefits

Further accelerate of app deployment

Reduce effort to deploy apps

Streamline development and testing

Lower costs associated with app deployment

Increase server consolidation $$$

Why Containers?
Applications are fueling innovation in today's cloud-mobile world

Developers

Containers unlock ultimate productivity and freedom

Enable 'write-once, run-anywhere' apps

Can be deployed as multi-tier distributed apps in IaaS/PaaS models

Containers offers powerful abstraction for microservices

Operations

Enhances familiar IT deployment models

Provide standardized environments for development, QA, and production teams

Abstract differences in OS distributions and underlying infrastructure

Higher utilization and compute density

Rapid scale-up and scale-down in response to changing business needs

DevOps

Integrate people, process, and tools for an optimized app development process

Operations focus on standardized infrastructure

Developers focus on building, deploying, and testing apps

Windows Server Containers
Anatomy and key capabilities

Spotlight capabilities

Build: Developers will use familiar development tools, such as Visual Studio, to write apps to run within containers
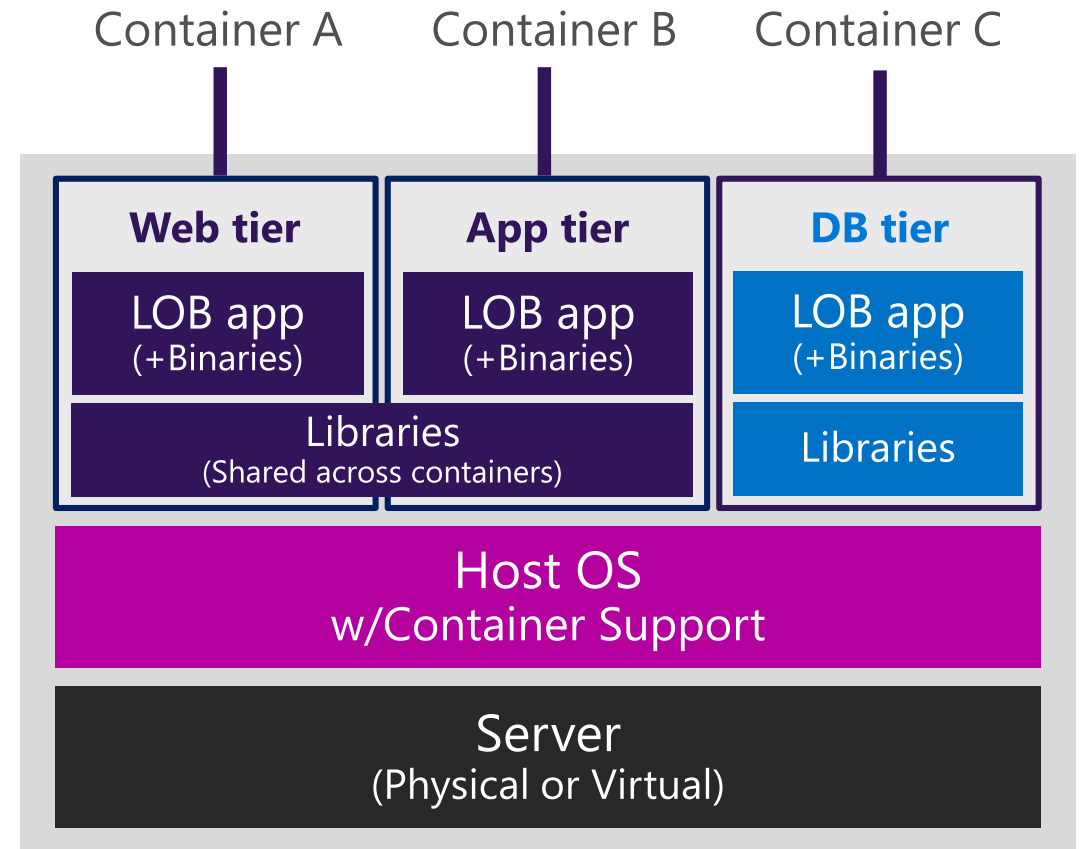
By building modular apps leveraging containers, modules can scale independently, and be updated on independent cadences

Run: Container capabilities built into Windows Server

Manage: Deploy and manage containers using PowerShell, or using Docker

Resources: Define CPU and memory resources per container along with storage and network throughput

Network: Provide NAT or DHCP/static IP for network connectivity

Container A   Container B   Container C

Web tier	App tier	DB tier
LOB app (+Binaries)	LOB app (+Binaries)	LOB app (+Binaries)
Libraries (Shared across containers)		Libraries

Host OS
w/Container Support

Server
(Physical or Virtual)

Hyper-V Containers
Anatomy and key capabilities
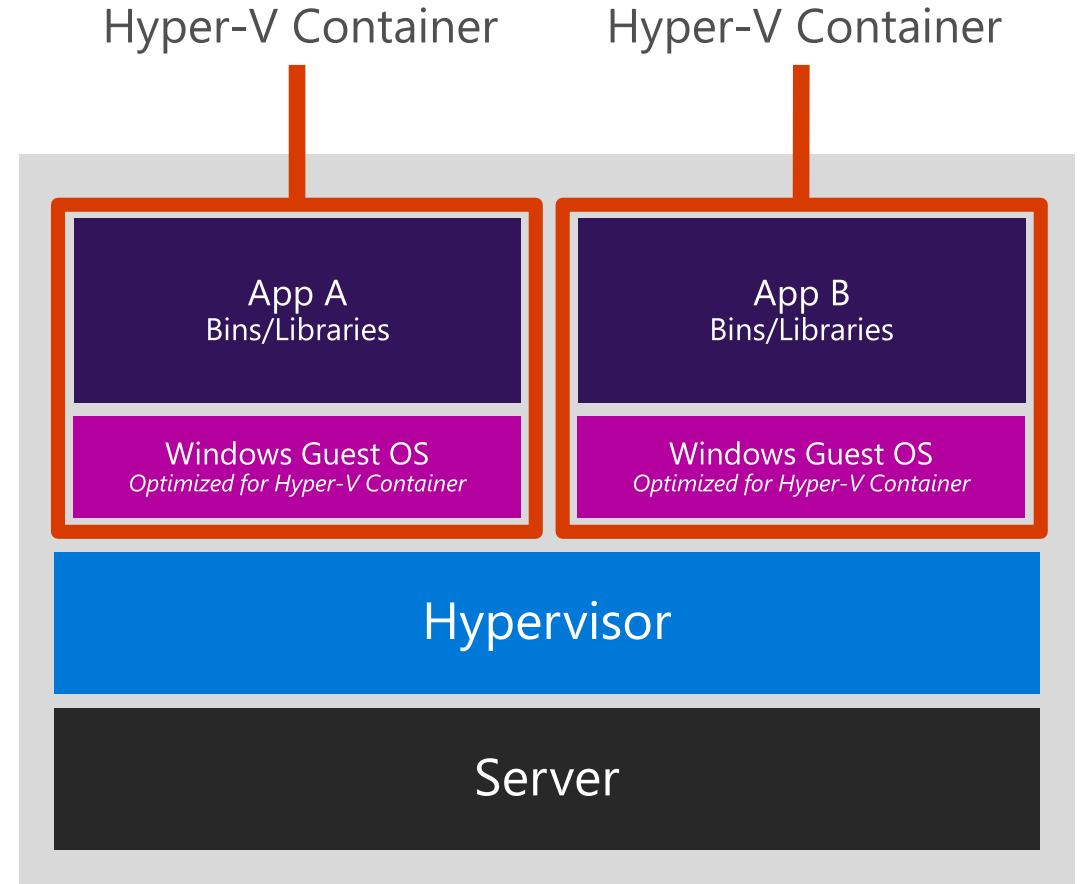
📹 Spotlight capabilities

Consistency: Hyper-V containers use the same APIs as Windows Server containers ensuring consistency across management and deployment toolsets.

Compatibility: Hyper-V containers use the exact same images as Windows Server containers

Strong isolation: Each Hyper-V container has its own dedicated copy of the kernel

Highly trusted: Built with proven Hyper-V virtualization technology

Optimized: The virtualization layer and the operating system have been specifically optimized for containers
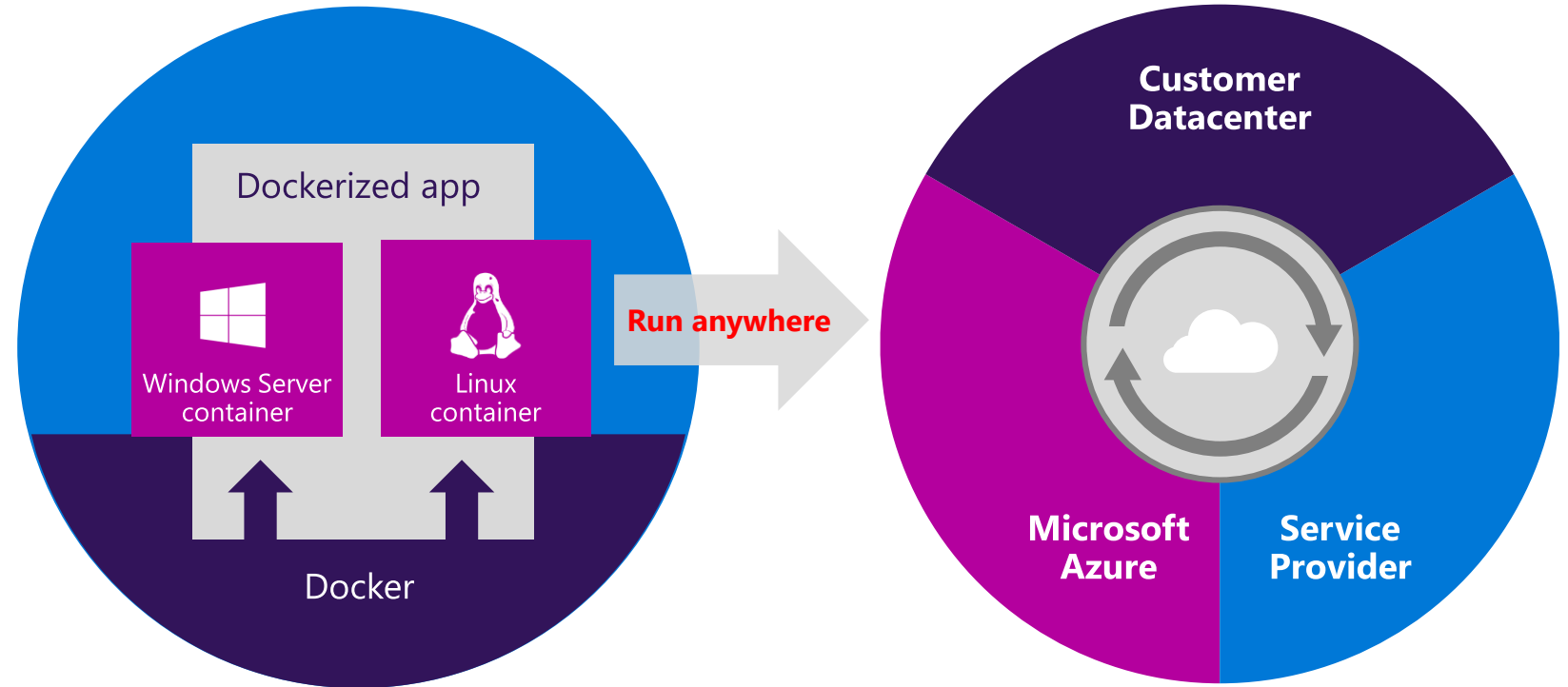
Hyper-V Container

Hyper-V Container

App A
Bins/Libraries

Windows Guest OS
Optimized for Hyper-V Container

App B
Bins/Libraries

Windows Guest OS
Optimized for Hyper-V Container

Hypervisor

Server

Docker integration
Joint strategic investments to drive containers forward

Docker: An open source engine that automates the deployment of any application as a portable, self-sufficient container that can run almost anywhere

Partnership: Enable the Docker toolset to manage multi-container applications using both Linux and Windows containers, regardless of the hosting environment or cloud provider

Dockerized app

Windows Server container

Linux container

Run anywhere

Docker

Customer Datacenter

Microsoft Azure

Service Provider

Strategic investments →

Investments in the next wave of Windows Server

Open source development of the Docker Engine for Windows Server

Azure support for the Docker Open Orchestration APIs

Federation of Docker Hub images into the Azure Gallery and Portal

Best-in-class Linux support on Hyper-V

Spotlight capabilities

Broad support: Run Red Hat, SUSE, OpenSUSE, CentOS, Ubuntu, Debian and Oracle Linux, with full support

Increased utilization: Run Windows and Linux side-by-side, driving up utilization and reducing hardware costs

Enhanced networking: Highest levels of networking performance in Linux guests with virtual Receive Side Scaling (vRSS) support

Storage enhancements: Hot-add and online-resize of storage for enhanced administration flexibility

Better protection: Better-than-physical backup support for virtualized Linux guests on Hyper-V

Simplified management: Single experience for managing, monitoring, and operating the infrastructure
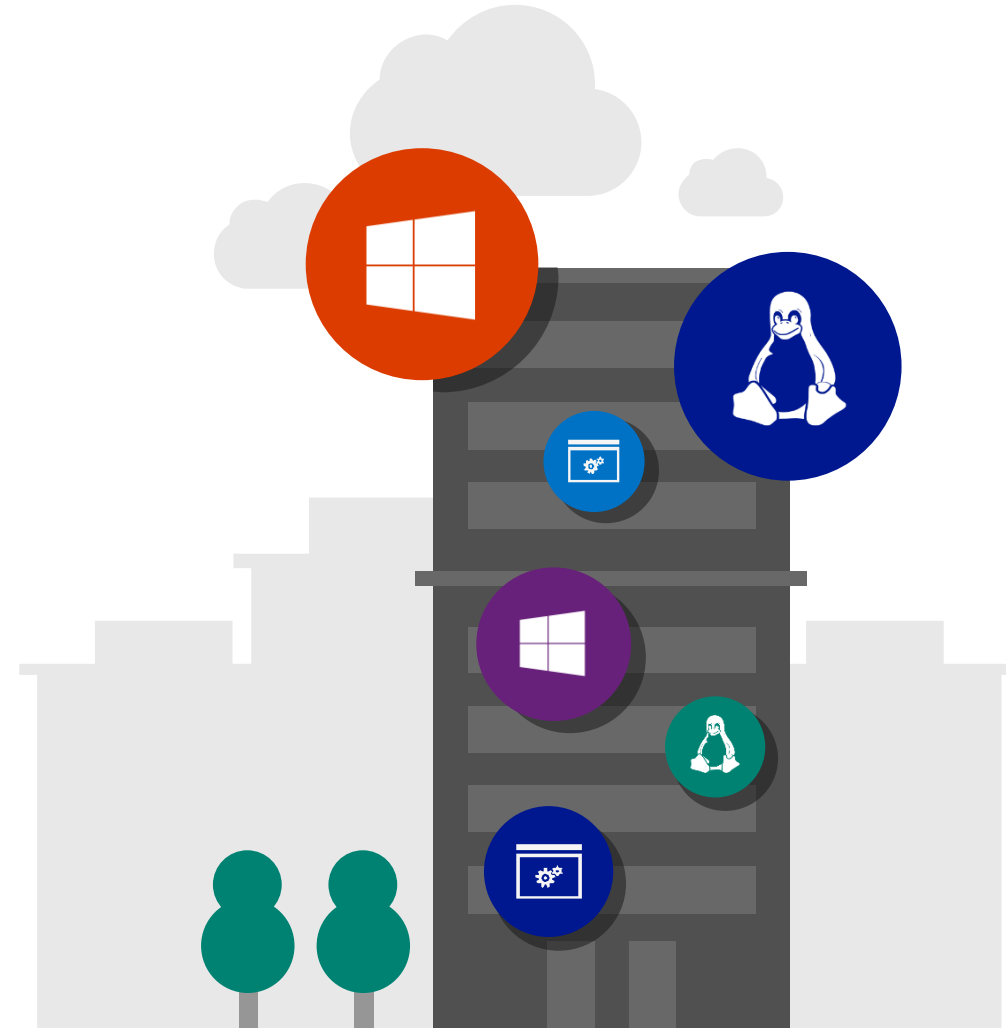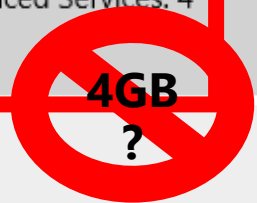
2# SQL 2016 and DBaaS

Compare SQL Server 2016 editions[1]

Features		SQL Server 2016 Enterprise	SQL Server 2016 Standard	SQL Server 2016 Express	SQL Server 2016 Developer
Mission-critical performance	Maximum number of cores	Unlimited	24 cores	4 cores	Unlimited
	Maximum memory utilized per instance	Operating system max	128 GB	1 GB	Operating system max
	Maximum size	524 PB	524 PB	10 GB	524 PB
	Production use rights	●	●	●	
	Basic OLTP	●	●	●	●
	Manageability: Management Studio, policy-based management	●	●	●	●
	Basic high availability: 2-node single database failover, non-readable secondary	●	●	NO HA?	●

Compare SQL Server 2016 editions[1]

Features		SQL Server 2016 Enterprise	SQL Server 2016 Standard	SQL Server 2016 Express	SQL Server 2016 Developer
Business intelligence	Maximum memory utilized per instance of Analysis Services	Operating system max	• Tabular: 16 GB • MOLAP: 64 GB		
	Maximum memory utilized per instance of Reporting Services	Operating system max	64 GB	Express with Advanced Services: 4 GB	
	Programmability and developer tools: T-SQL, CLR, Data Types, FileTable, JSON	●	●	●	●
	Basic reporting and analytics	●	●	●	●
	Basic data integration: SQL Server Integration Services, built-in connectors	●	●		●

**4GB ?**

SQL 2016 reporting services?

Example 1: Shared-multi tenant for SMB

- Database-as-service for SMB

- Multi-tenant SQL Server 2016 Enterprise + Azure Pack

- Billing based on DB size
  - X MB for Free
  - 1Gb for ~$X/month

- Target audience – developers, LOB applications

- Value proposition:
  - "SQL Server Enterprise Edition for a price of Web Edition"
  - "2016 - latest and greatest SQL Server version with cool new features"
  - "Fully managed by Service Provider DBAs. Just place your DB in the cloud, don't care about instance management"
  - "DBaaS subscription instead of upfront purchase of hardware and licenses"

- Customers can use new 2016 features:
  - Always Encrypted
  - In-Memory OLTP
  - Row-level security
  - Dynamic Data Masking...

Example 2: managed databases for enterprises

- Managed SQL Server offering for Enterprise

- Custom SQL Server solutions for big customers, stored in service provider DCs, supported by service provider DBAs

- Target audience – current IaaS and colocation customers

- Value proposition:
  - "Real SQL Server experts are unicorns. We have some in our team, trust them your DBs."
  - "Move your SQL Server in the cloud to an upper level: IaaS -> PaaS"

- 3 support+maintenance plans

2x Customer Lifecycle on SQL over IaaS

Rackspace Video Case using SQL Server 2016
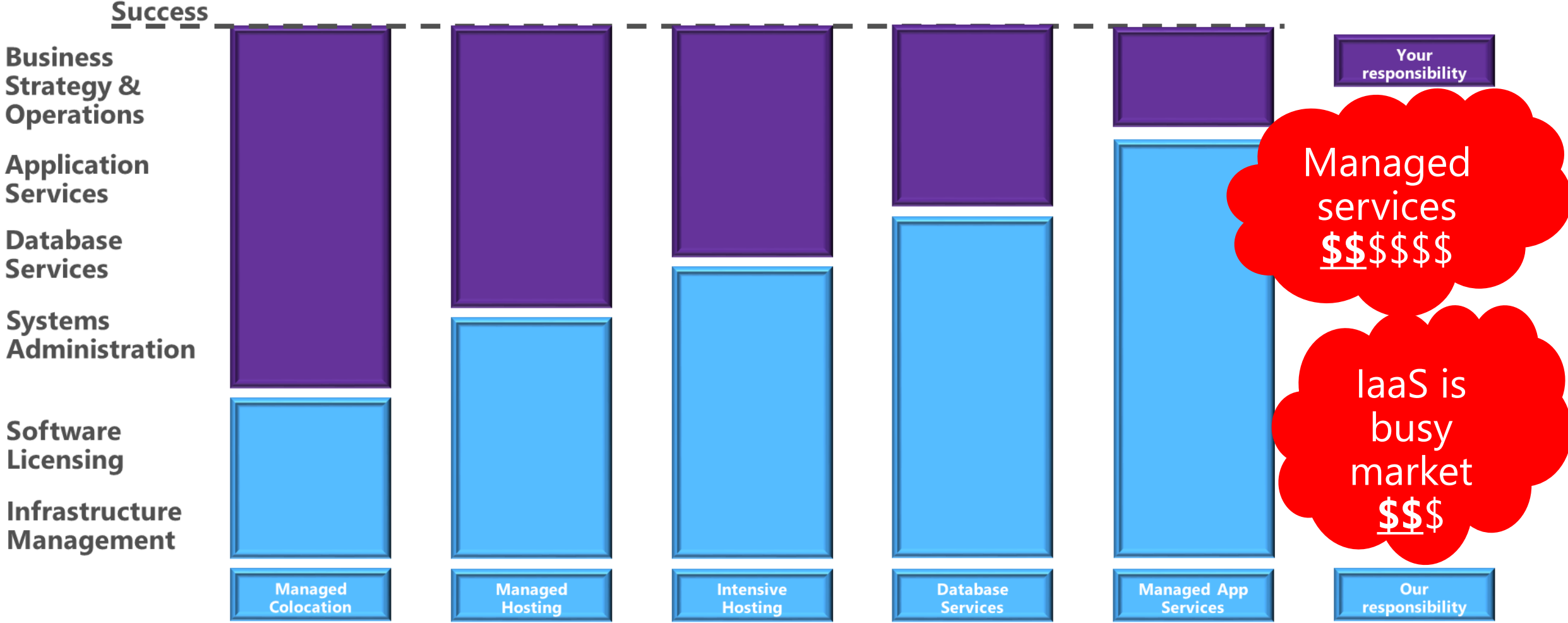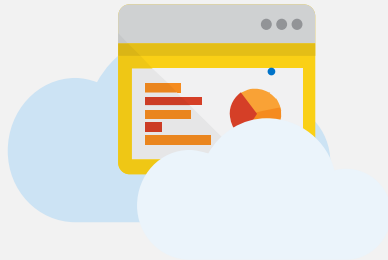
SQL 2016 in a Box

SQL 2016 In a Box

http://aka.ms/SQL-in-a-box

How to make money

- Offer value deck
- Partner profitability analysis excel tool

How to implement

- Offer technical architecture guidance
- Detailed offer implementation guidance

How to sell

- Messaging framework
- Sales training deck
- Data sheets
- Landing page template

https://www.microsoft.com/en-us/cloudandhosting/SQL_solutions.aspx

Azure Stack Live Demo

Your DataCenter.
Our Software.
Hybrid Cloud.

Microsoft

For more details, please check links below of my recent LAB deployment
https://blogs.technet.microsoft.com/hybridcloudbp/2016/10/26/azure-stack-tp2-deployment/
https://blogs.technet.microsoft.com/hybridcloudbp/2016/10/27/first-look-on-azure-stack-tp2/

Attila Macskasy
Partner Technology Strategist – Hosting
Central & Eastern Europe

attila.macskasy@microsoft.com

Microsoft

Thanks a lot!

Microsoft