VEEAM User Group Denmark

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Consultant with focus on Hyper-V and Azure/Pack/Stack

30 Min , Presentation on Hyper-V changes that affect VEEAM , and high speed backup(1)

(*1=Minor Changes)

(1) Guess whats missing :/

VEEAM 8+ >

Shared VHDX support: Backup jobs can now back up shared VHDX virtual disks in a crash-consistent state. The full VM restore wizard has also been enhanced to account for shared VHDX restore specifics.

CBT driver certification: The proprietary changed block tracking (CBT) driver has passed Microsoft Windows Hardware Certification testing for Windows Server 2012 R2.

Hyper-V Backup 2016

New architecture to improve reliability, scale and performance.

Decoupling backing up virtual machines from backing up the underlying storage.
No longer dependent on hardware snapshots for core backup functionality, but still able to take advantage of hardware capabilities when they are present.

Hyper-V Backup 2016

Most Hyper-V backup solutions today implement kernel level file system filters in order to gain efficiency.

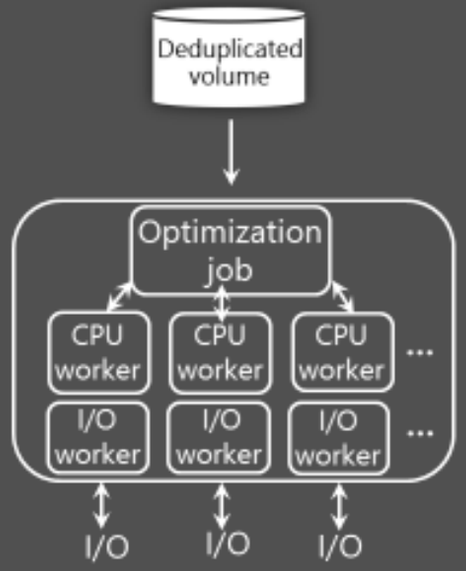
Makes it hard for backup partners to update to newer versions of Windows
Increases the complexity of Hyper-V deployments
Efficient change tracking for backup is now part of the platform

Windows 2016 Deduplication

New design for dedup optimization

Today

Windows Server 2016



Windows Server 2016 helps you scale up, with full support for 64TB volumes and full use of up to 1TB files

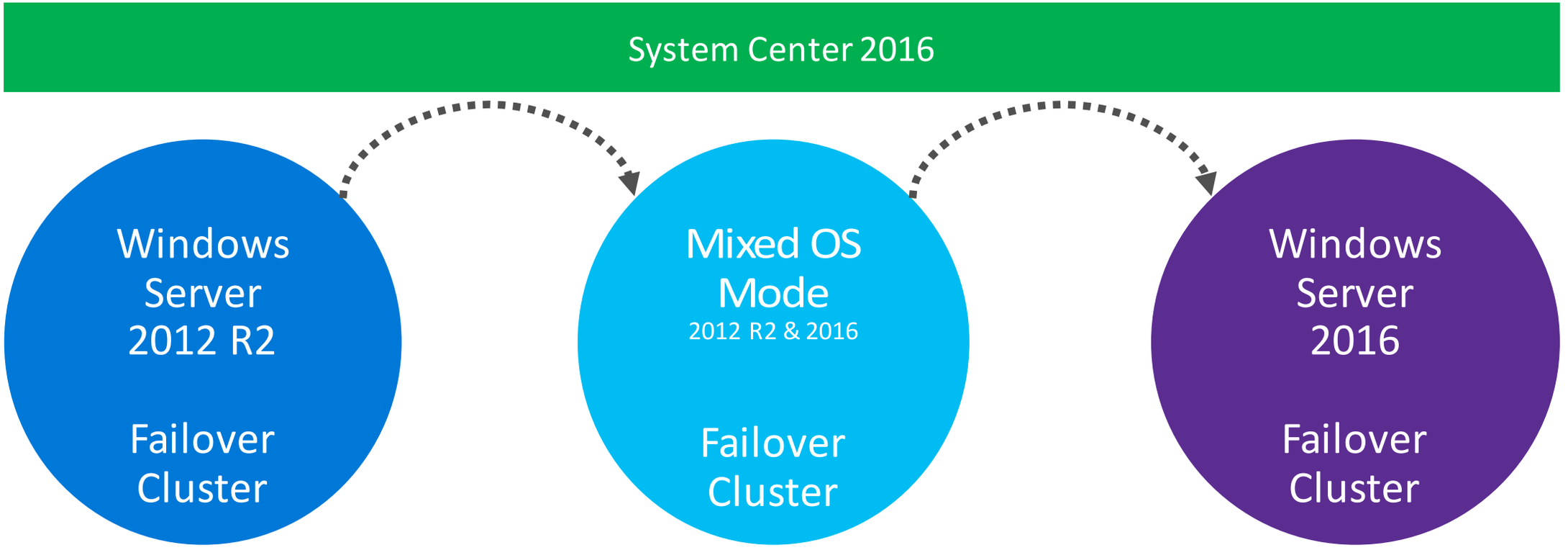
Cluster OS Rolling Upgrade

Mixed OS mode is a new transition state for Failover Clusters

Optimizations don't run

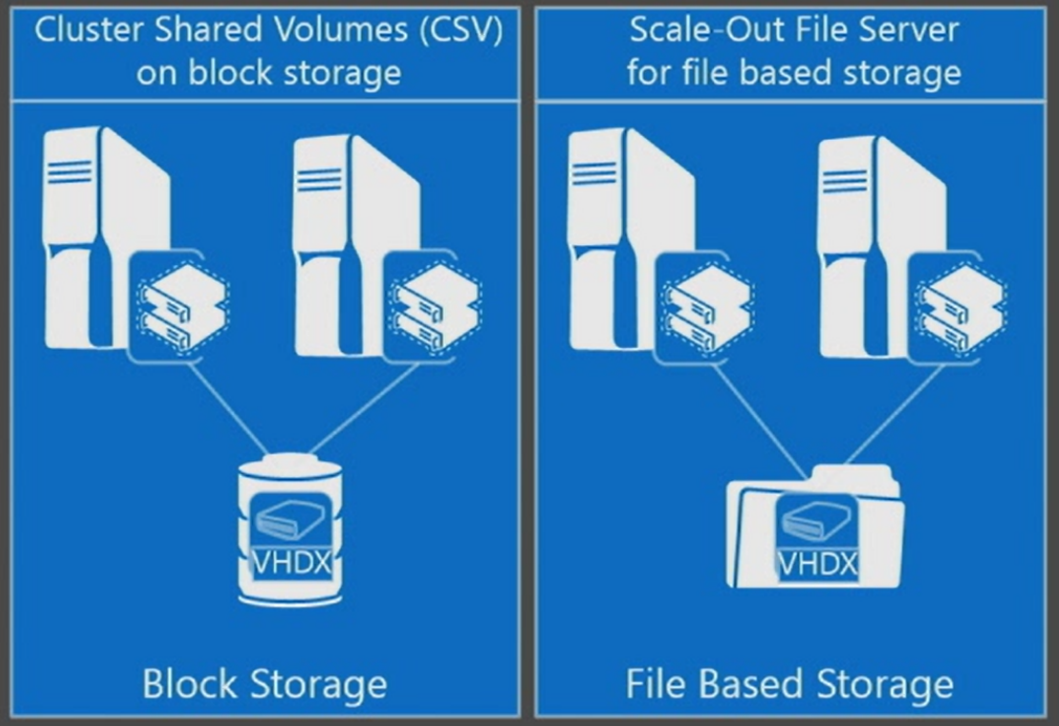
New features are not available

Do not plan on running your cluster in Mixed OS Mode for longer than one month



Shared VHDX

Guest Clustering	Guest Clustering with commodity storage Sharing VHDX files provides shared storage for Hyper-V Failover Clustering Maintains separation between infrastructure and tenants
Virtual SAS	VM presented a shared virtual SAS disk Appears as shared SAS disk to VM

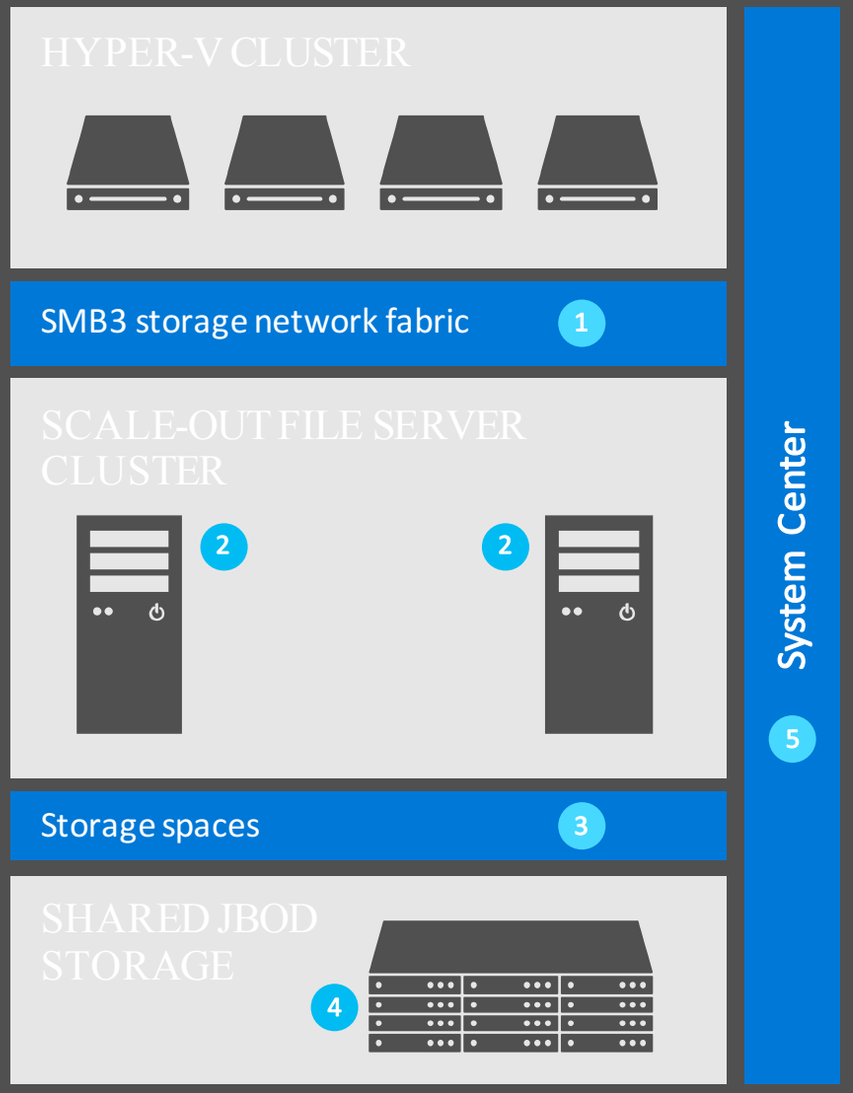


Microsoft Software-Defined Storage (SDS)

Primary application data storage on cost effective, continuously available, high performance SMB3 file shares backed by tiered storage spaces

1. **Performance and scalability** with SMB3 File Storage network
2. **Continuous availability and seamless scale-out** with Scale-Out File Server
3. **Elastic, reliable, optimized** with tiered storage spaces
4. **Low cost** standard volume hardware
5. **Unified storage management** with System Center

Today's solution with Windows Server 2012 R2 and System Center 2012 R2

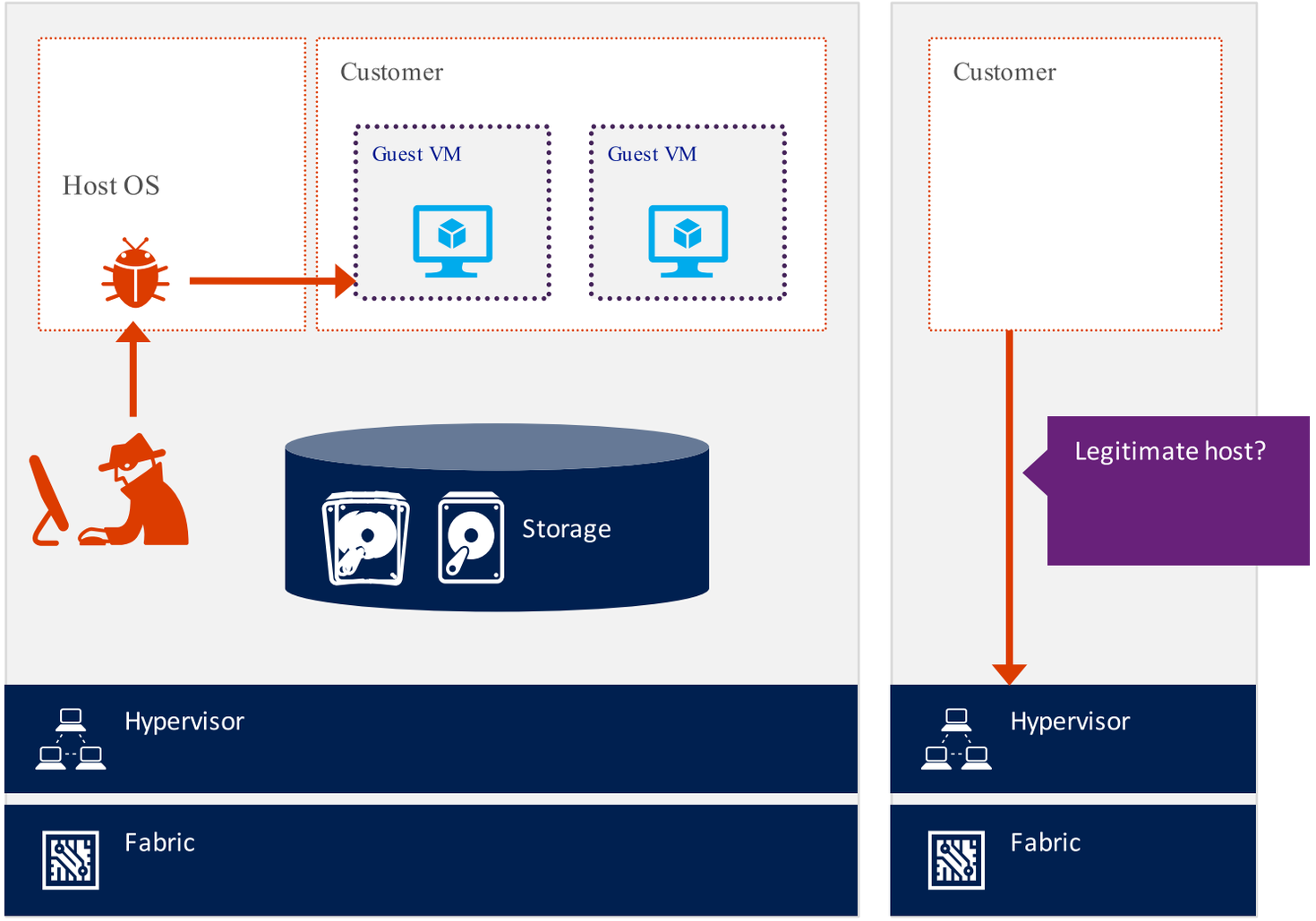


Challenges in protecting high-value assets

Any seized or infected host administrators can access
guest virtual machines

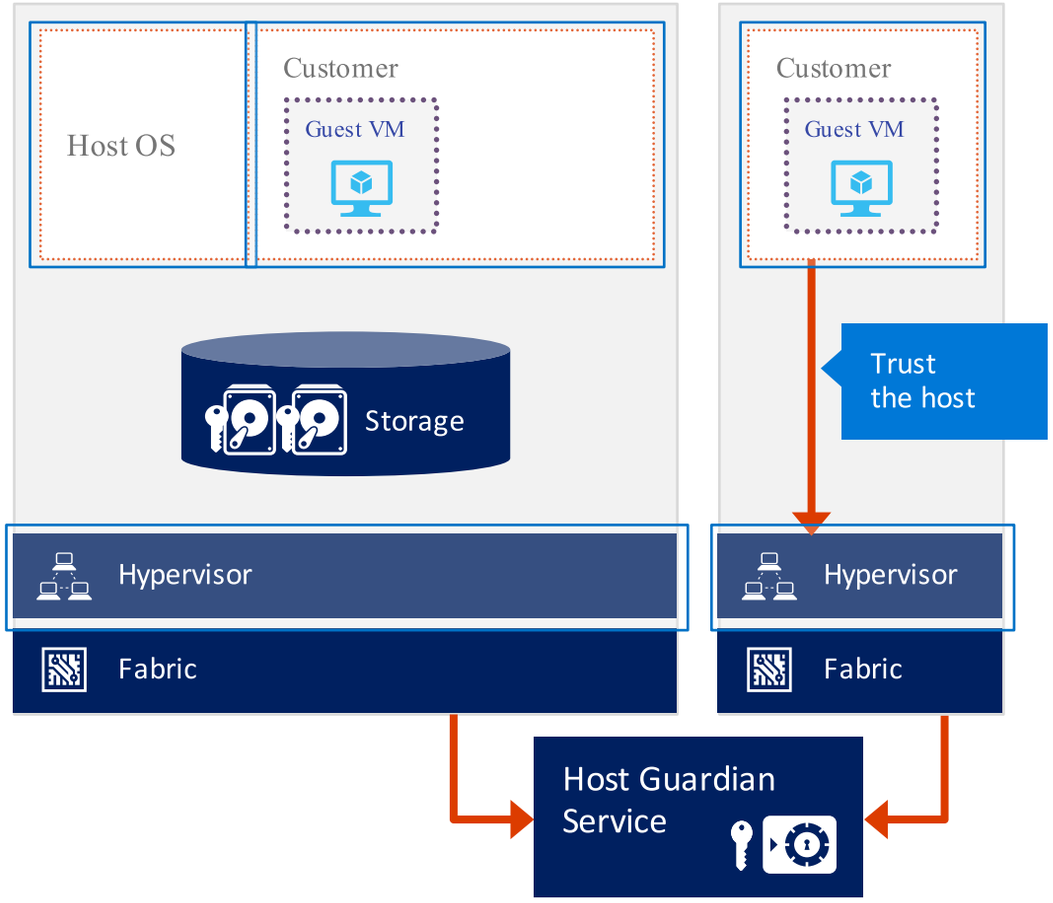
Impossible to identify legitimate hosts without a hardware based verification

Tenants VMs are exposed to storage and network attacks while unencrypted



Confidently protect sensitive customer data: Designed for ‘zero-trust’ environments

Hardware-rooted technologies to separate the guest operating system from host administrators	**Virtual Secure Mode** Process and Memory access protection from the host
Guarded fabric to identify legitimate hosts and certify them to run shielded tenant Generation 2 VMs	**Host Guardian Service** Enabler to run Shielded Virtual Machines on a legitimate host in the fabric
Virtualized trusted platform module (vTPM) support to encrypt virtual machines	**Shielded VM** Bitlocker enabled VM



Windows Server Hyper-V Microsoft System Center

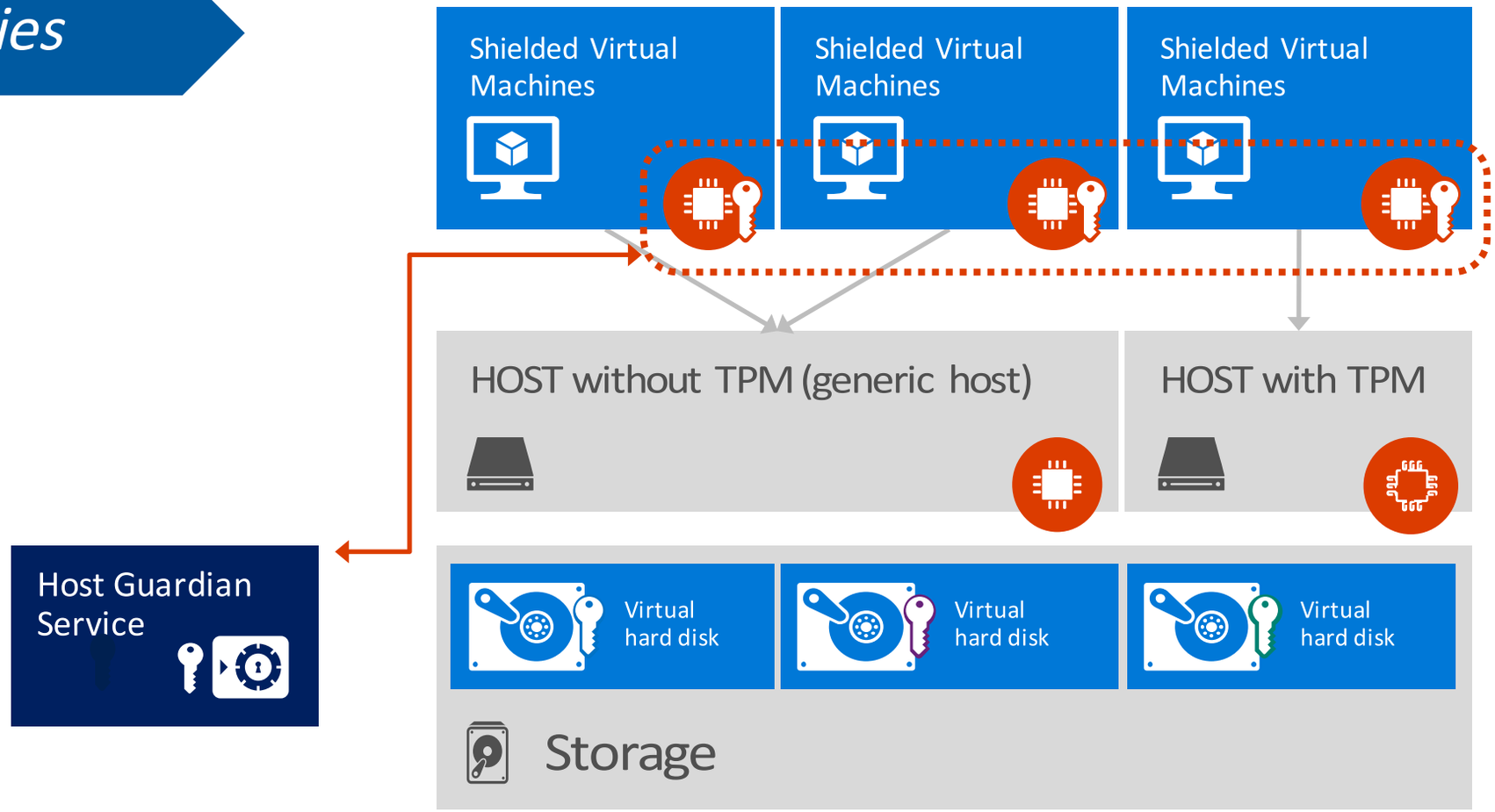
Shielded VMs

Spotlight capabilities

Shielded Virtual Machines can only run in fabrics that are designated as owners of that virtual machine

Shielded Virtual Machines will need to be encrypted (by BitLocker or other means) in order to ensure that only the designated owners can run this virtual machine

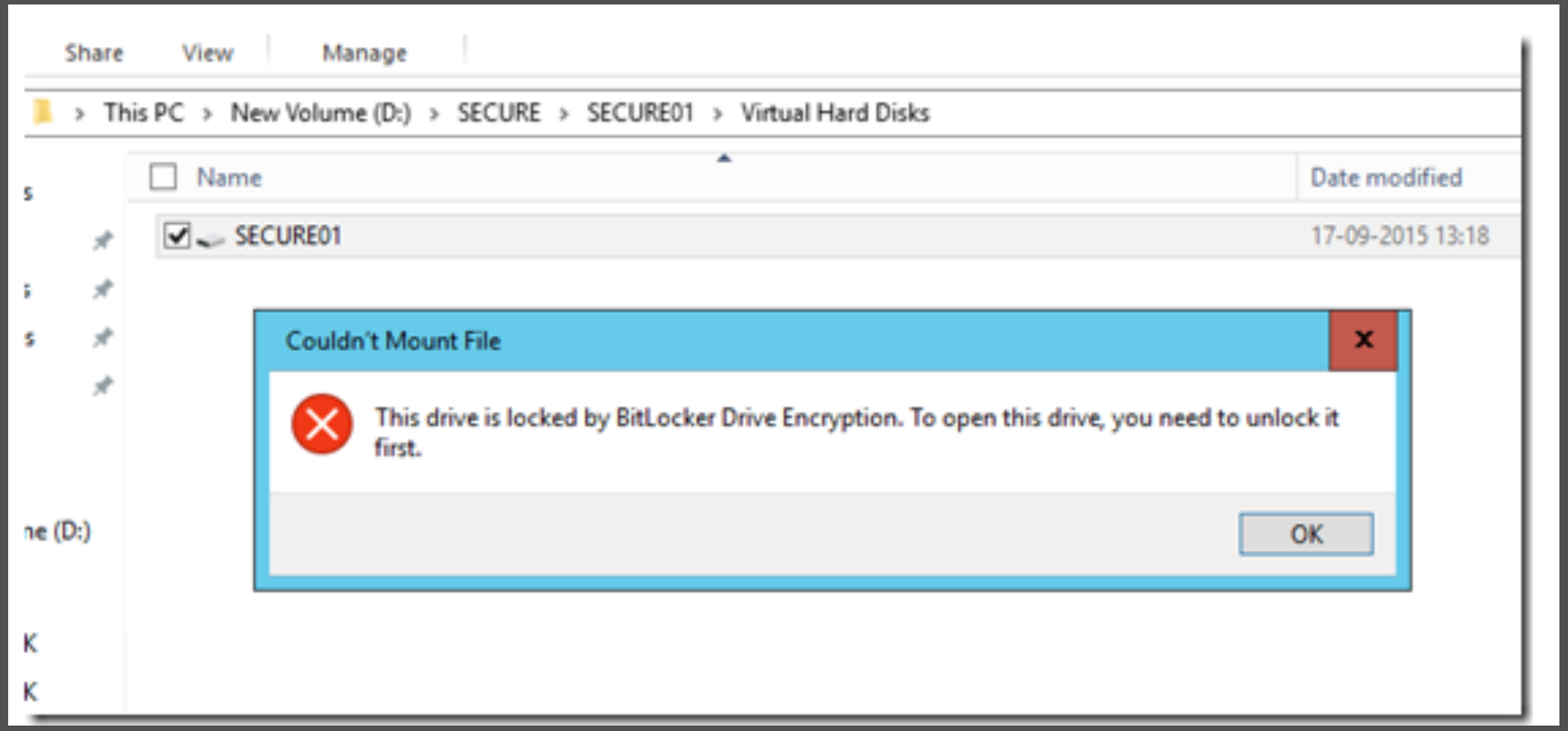
You can convert a running Generation 2 virtual machine into a Shielded Virtual Machine



Hyper-V Microsoft System Center Windows Server

Optimized files size (no compression): 19,46 GB
Space savings (no compression): 981,13 MB
Space savings percent (no compression): 4

Optimized files size (no compression): 7,93 GB
Space savings (no compression): 9,46 GB
Space savings percent (no compression): 54



NEW: Storage Spaces Direct

Software defined storage for private cloud using industry standard servers with local storage

Cloud design points and management

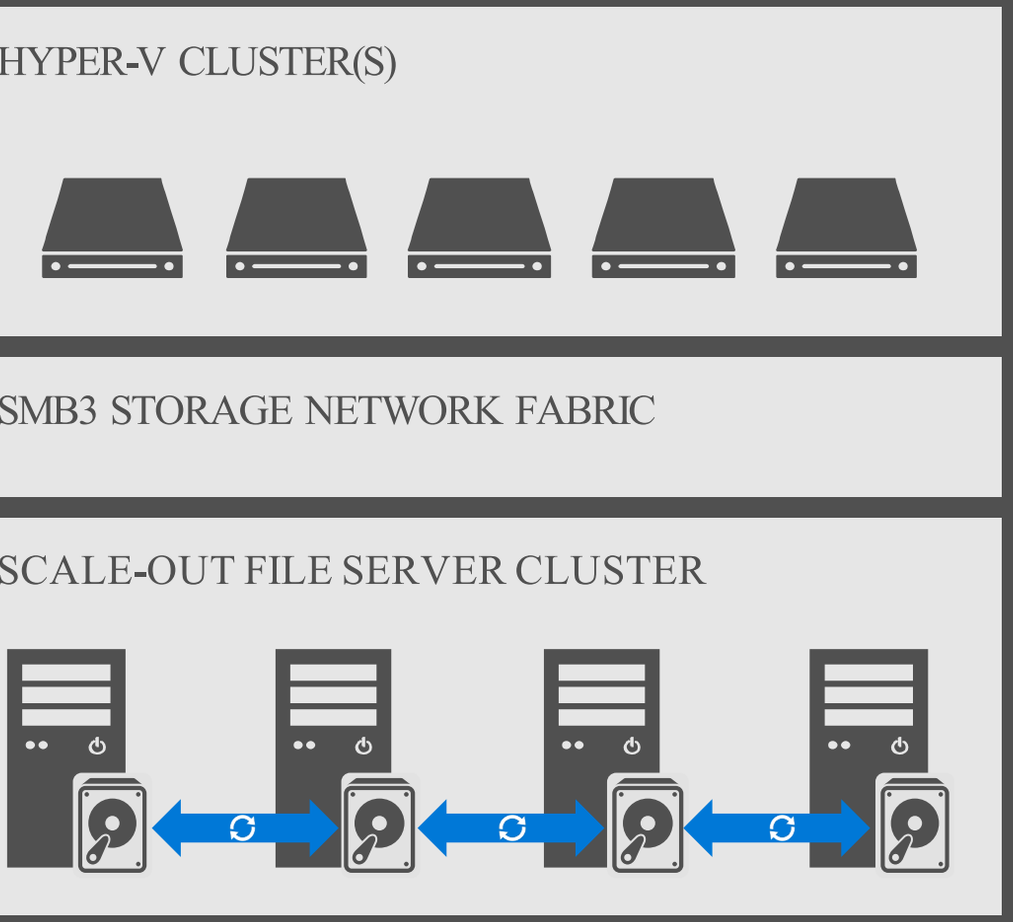
- Standard servers with local storage
- New device types such as SATA and NVMe SSD
- Prescriptive hardware configurations
- Deploy/manage/monitor with SCVMM, SCOM & PowerShell

Reliability, scalability, flexibility

- Fault tolerance to disk, enclosure, node failures
- Scale pools to large number of drives
- Simple and fine grained expansion
- Fast VM creation and efficient VM snapshots

Use cases

- Hyper-V IaaS storage
- Storage for backup and replication targets
- Hyper-converged (compute and storage together)
- Converged (compute and storage separate)

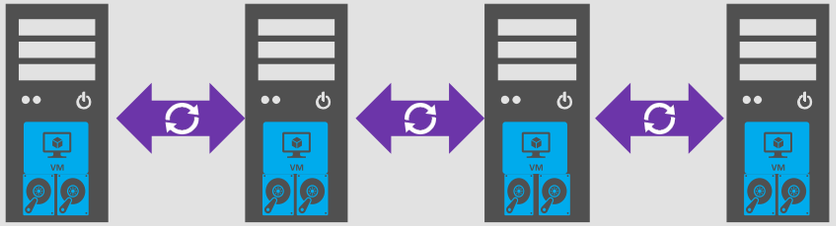


Storage Spaces Direct – Deployment Choice

Hyper-converged

Compute and Storage resources together
Compute and Storage scale and are managed together
Typically small to medium sized scale-out deployments

HYPER-V CLUSTER



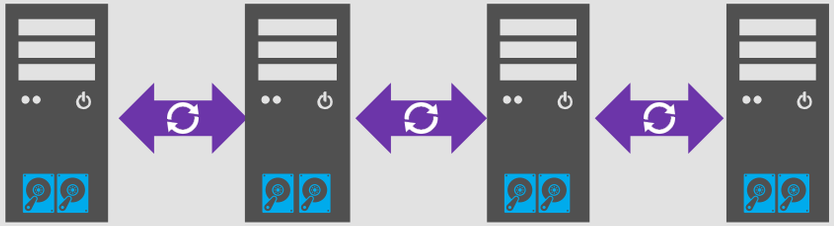
Converged (Disaggregated)

Compute and Storage resources separate
Compute and Storage scale and are managed independently
Typically larger scale-out deployments

HYPER-V CLUSTER(S)

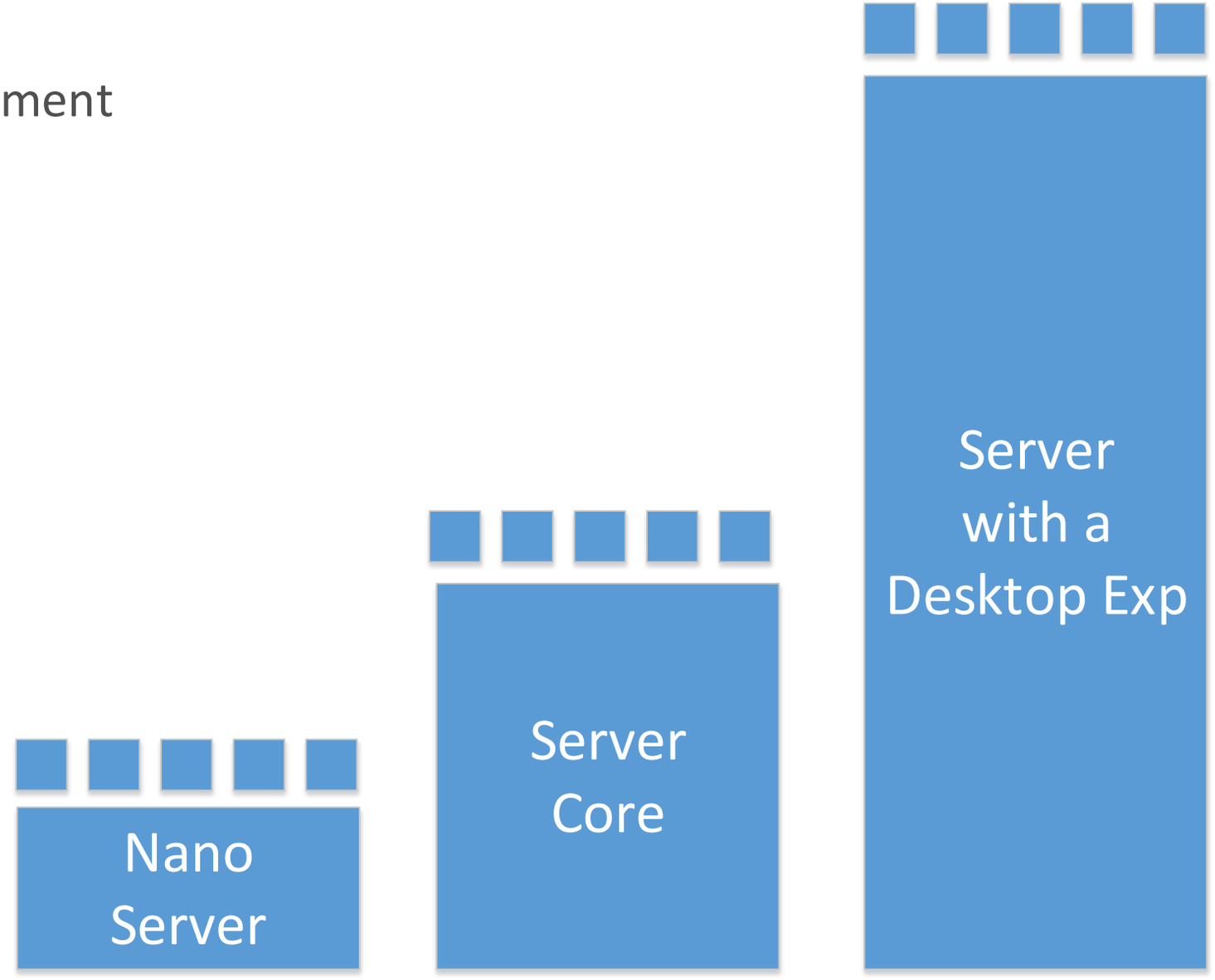
SMB3 STORAGE NETWORK FABRIC

SCALE-OUT FILE SERVER CLUSTER



And one more “little” thing: Nano Server

- A new headless, 64-bit only, deployment option for Windows Server
- Deep refactoring focused on
  - CloudOS infrastructure
  - Born-in-the-cloud applications



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.