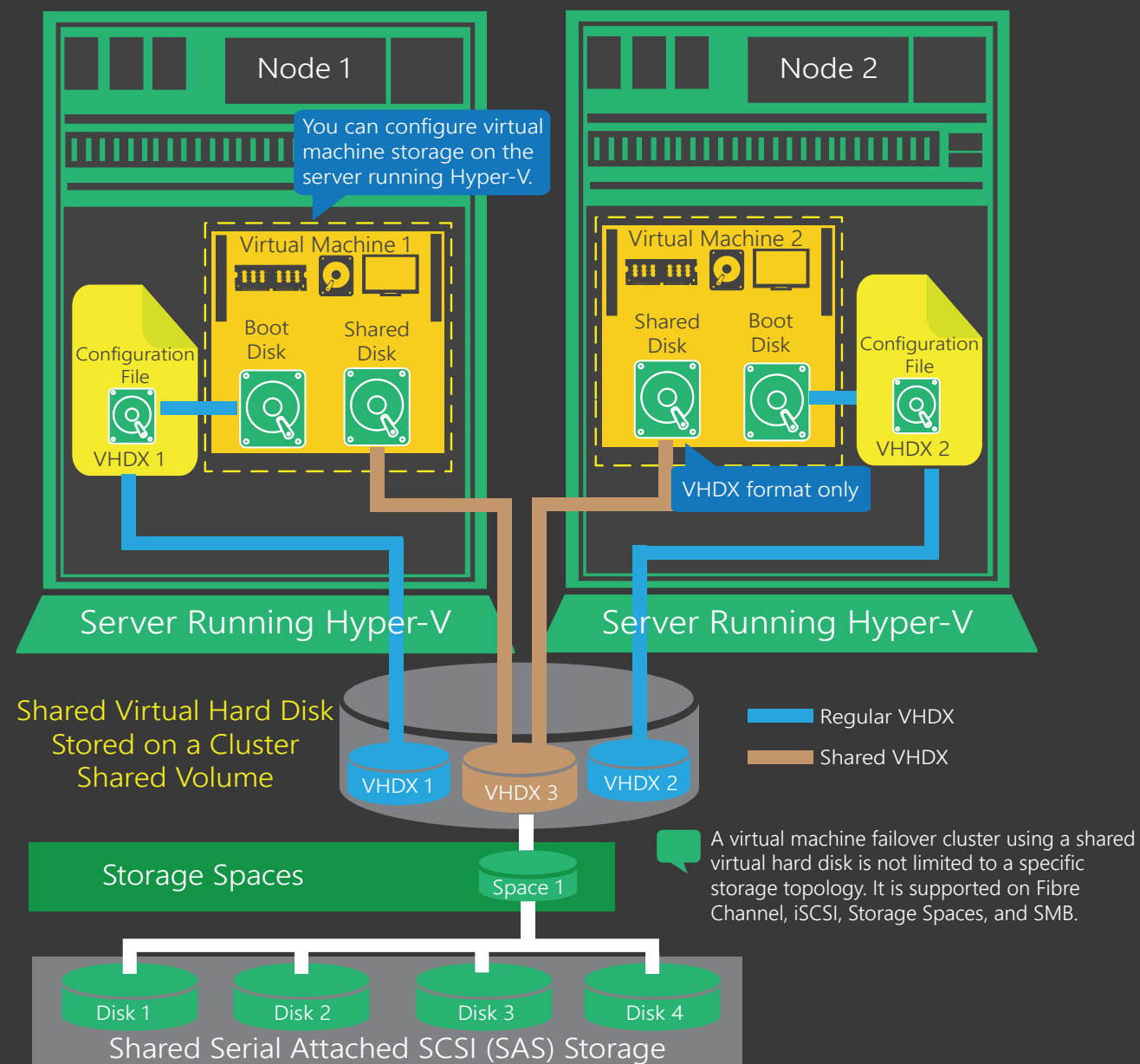# Hyper-V Storage

Hyper-V with Virtual Hard Disk Sharing

Windows Server 2012 R2 enables you to share a virtual hard disk file (VHDX format), which provides shared storage for a virtual machine failover cluster (also known as a guest cluster). By making shared storage available to virtual machines, you can can easily use a virtual machine failover cluster to protect your application services (for example, SQL or file server services) running inside your virtual machines.

Virtual Machine Clustering Using Cluster Shared Volumes

One option for using virtual hard disk sharing is to use cluster shared volumes.

Node 1

You can configure virtual machine storage on the server running Hyper-V.

Virtual Machine 1

Configuration File

Boot Disk

Shared Disk

VHDX 1

Server Running Hyper-V

Node 2

Virtual Machine 2

Shared Disk

Boot Disk

Configuration File

VHDX 2

VHDX format only

Server Running Hyper-V

Shared Virtual Hard Disk Stored on a Cluster Shared Volume

VHDX 1   VHDX 3   VHDX 2

Regular VHDX
Shared VHDX

Storage Spaces

Space 1

A virtual machine failover cluster using a shared virtual hard disk is not limited to a specific storage topology. It is supported on Fibre Channel, iSCSI, Storage Spaces, and SMB.

Disk 1   Disk 2   Disk 3   Disk 4

Shared Serial Attached SCSI (SAS) Storage

Virtual Hard Disk Sharing does not support:

- Storage migration.
- Hyper-V Replica.
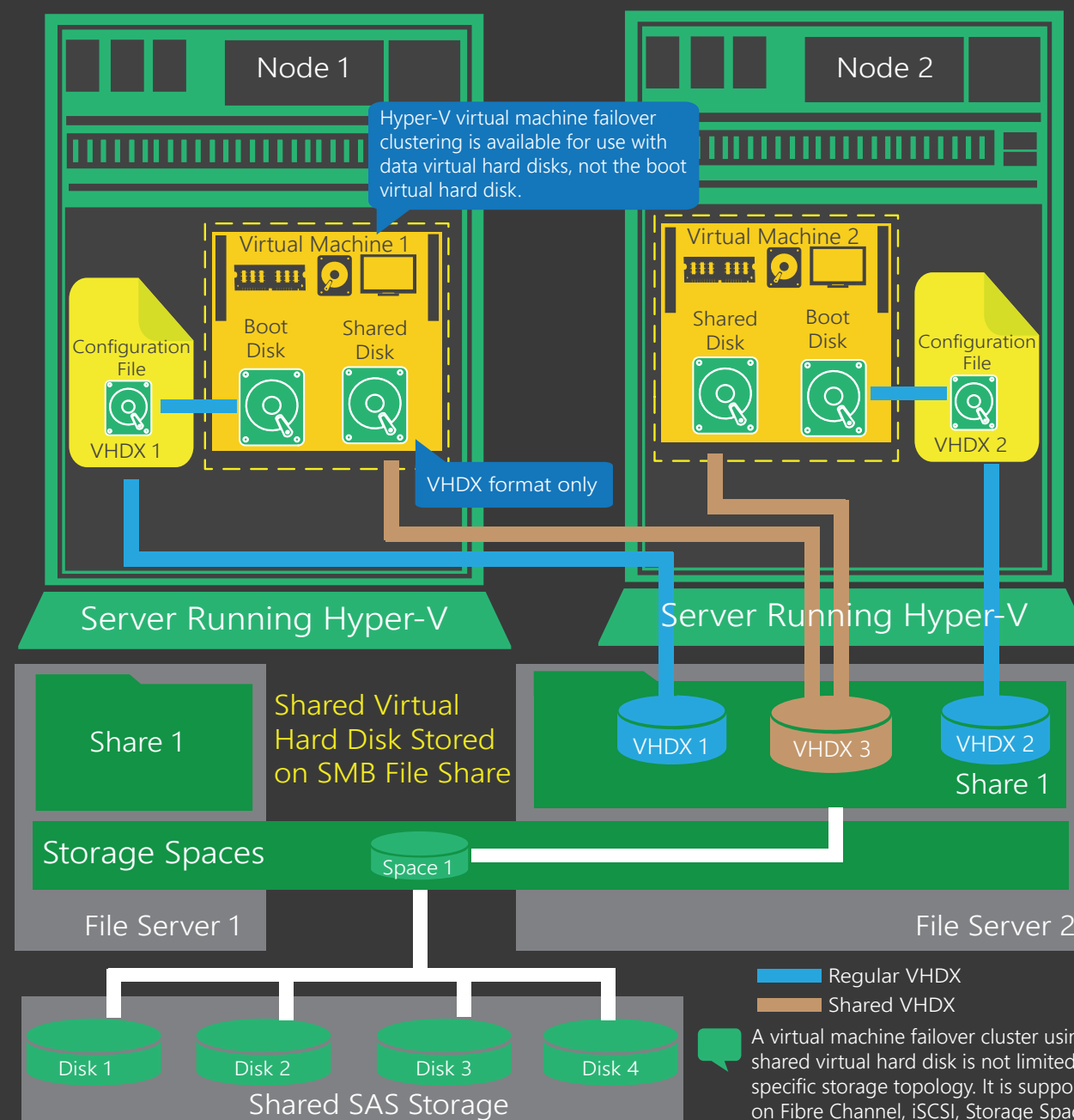- Storage Quality of Service (QoS).

Supported Scenarios for Virtual Hard Disk Sharing

Supported scenarios include:

- Faster virtual hard disk sharing using SMB Direct and SMB Multichannel.
- Migrating shared virtual hard disks using live migration.
- Saving and restoring virtual machines.
- Protecting against the failure of a guest node, Hyper-V host, or file server node.
- Using Windows Server 2012 R2 for file server nodes and Hyper-V hosts.
- Using Windows Server 2012 R2 and Windows Server 2012 for guest nodes.

Virtual Machine Clustering with SMB Storage in a Scale-Out File Server

One option for using virtual hard disk sharing is to use a scale-out file server.

Node 1

Hyper-V virtual machine failover clustering is available for use with data virtual hard disks, not the boot virtual hard disk.

Configuration File

VHDX 1

Virtual Machine 1

Boot Disk

Shared Disk

VHDX format only

Server Running Hyper-V

Node 2

Virtual Machine 2

Shared Disk

Boot Disk

Configuration File

VHDX 2

Server Running Hyper-V

Share 1

Shared Virtual Hard Disk Stored on SMB File Share

VHDX 1   VHDX 3   VHDX 2

Share 1

Storage Spaces

Space 1

File Server 1

File Server 2

Regular VHDX
Shared VHDX

A virtual machine failover cluster using a shared virtual hard disk is not limited to a specific storage topology. It is supported on Fibre Channel, iSCSI, Storage Spaces, and SMB.

Disk 1   Disk 2   Disk 3   Disk 4

Shared SAS Storage

More information ....

Live Migration

Hyper-V Storage Virtual Hard Disk Sharing

Online Virtual Hard Disk Resizing Quality of Service

Session Modes

Hyper-V and Failover Clustering

Generation 2 Virtual Machines

Windows 8 App Server Posterpedia