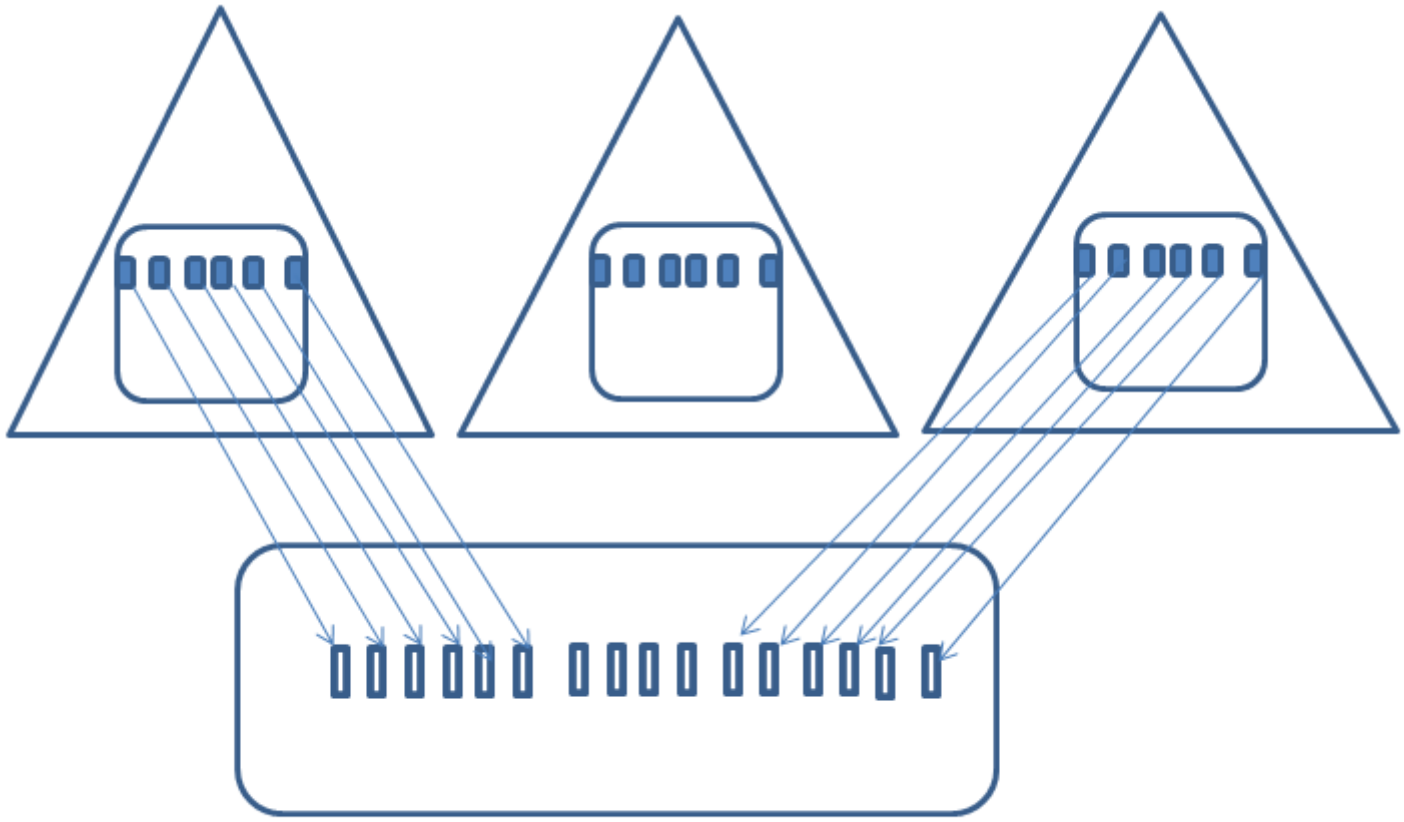
Shared storage

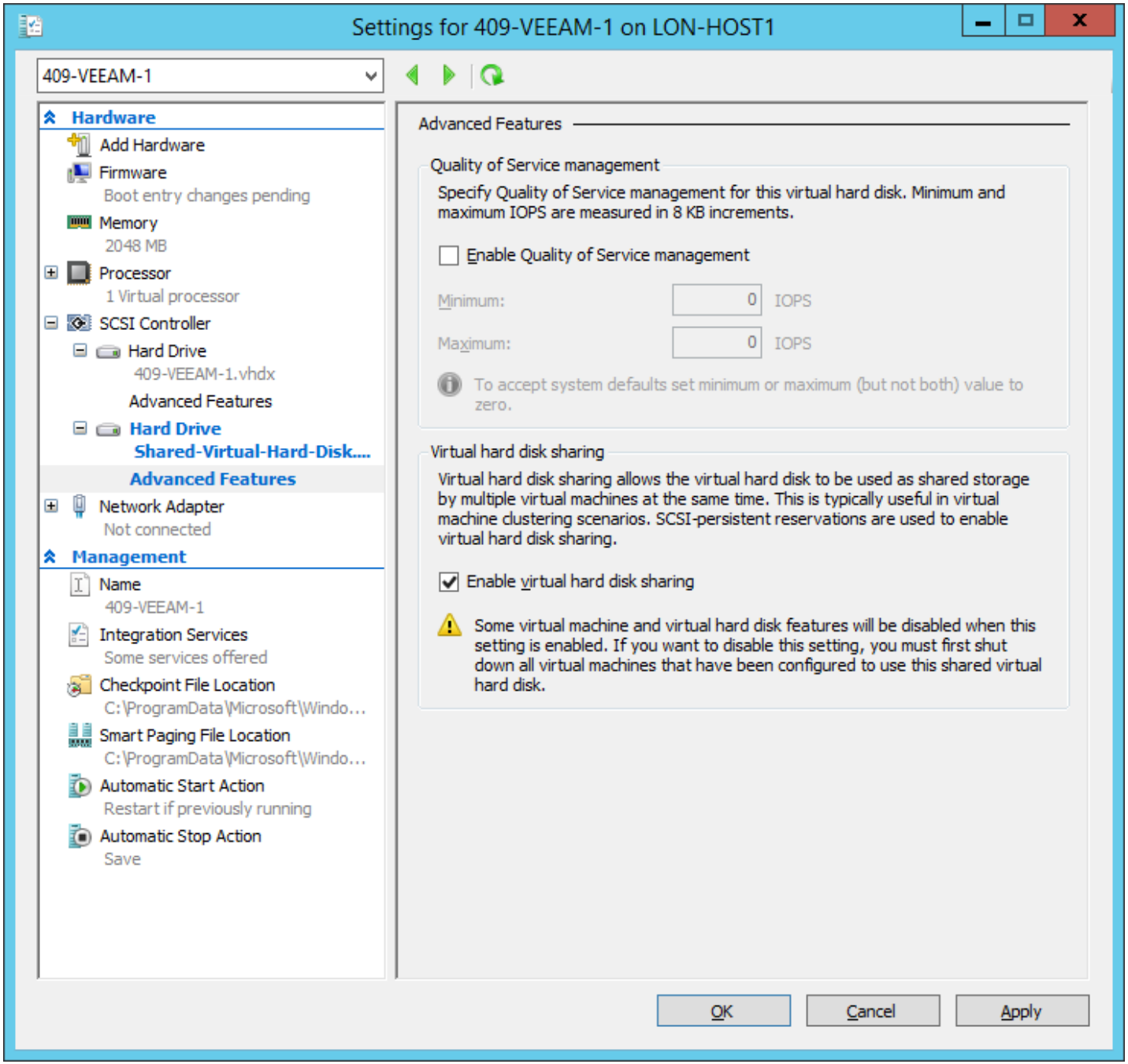


- **Serial Attached SCSI (SAS).** Suitable for two-node failover clusters where the cluster nodes are in close proximity to each other.
- **iSCSI storage.** Suitable for failover clusters with two or more nodes. Windows Server 2012 and Windows Server 2012 R2 includes iSCSI Target Software, allowing it to host iSCSI targets that can be used as shared storage by Windows failover clusters.
- **Fibre Channel.** Fibre Channel/Fibre Channel over Ethernet storage requires special network hardware. While generally providing better performance than iSCSI, Fibre Channel components tend to be more expensive.
- **SMB 3.0 file shares configured as continuously available storage.** This special type of file share is highly available, with multiple cluster nodes able to maintain access to the file share. This configuration requires multiple clusters. One cluster hosts the highly available storage used by the VMs, and the other cluster hosts the highly available VMs. Scale out file servers using SMB 3.0 are only available using Windows Server 2012 and Windows Server 2012 R2.
- **Cluster Shared Volumes (CSVs).** CSVs can also be used for VM storage in Hyper-V failover clusters. As with continuously available file shares, multiple nodes in the cluster have access to the files stored on CSVs, ensuring that failover occurs with minimal disruption. As with SMB 3.0 file shares, multiple clusters are required, with one cluster hosting the CSVs and the other cluster hosting the VMs. CSVs can be used as shared storage for Windows Server 2008 R2 Hyper-V failover clusters.

Shared virtual hard disks are a special type of shared storage only available to VM guest clusters . With shared virtual hard disks, each guest cluster node can be configured to access the same shared virtual hard disk .

Each VM cluster node’s operating system will recognize the shared virtual hard disk as shared storage when building the VM guest failover cluster .

Figure 2h shows a virtual
hard disk being configured as a shared virtual hard disk .


Settings for 409-VEEAM-1 on LON-HOST1
409-VEEAM-1
Hardware
Add Hardware
Firmware
Boot entry changes pending
Memory
2048 MB
Processor
1 Virtual processor
SCSI Controller
Hard Drive
409-VEEAM-1.vhdx
Advanced Features
Hard Drive
Shared-Virtual-Hard-Disk....
Advanced Features
Network Adapter
Not connected
Management
Name
409-VEEAM-1
Integration Services
Some services offered
Checkpoint File Location
C:\ProgramData\Microsoft\Windo...
Smart Paging File Location
C:\ProgramData\Microsoft\Windo...
Automatic Start Action
Restart if previously running
Automatic Stop Action
Save
Advanced Features
Quality of Service management
Specify Quality of Service management for this virtual hard disk. Minimum and maximum IOPS are measured in 8 KB increments.
Enable Quality of Service management
Minimum:
0
IOPS
Maximum:
0
IOPS
To accept system defaults set minimum or maximum (but not both) value to zero.
Virtual hard disk sharing
Virtual hard disk sharing allows the virtual hard disk to be used as shared storage by multiple virtual machines at the same time. This is typically useful in virtual machine clustering scenarios. SCSI-persistent reservations are used to enable virtual hard disk sharing.
Enable virtual hard disk sharing
Some virtual machine and virtual hard disk features will be disabled when this setting is enabled. If you want to disable this setting, you must first shut down all virtual machines that have been configured to use this shared virtual hard disk.
OK
Cancel
Apply

Shared virtual hard disks have the following requirements:

- Can be used with generation 1 and generation 2 VMs .
- Can only be used with guest operating systems running Windows Server 2012 or Windows Server 2012 R2 .
- Can only be used if virtualization hosts are running the Windows Server 2012 R2 version of Hyper-V .
- Must be configured to use the .vhdx virtual hard disk format .
- Must be connected to a virtual SCSI controller .
- When deployed on a failover cluster, the shared virtual hard disk itself should be located on shared storage
- VMs can only use shared virtual hard disks to store data . You can't boot a VM from a shared virtual hard disk .