# Understanding Storage Architecture

## 1 SMB Direct

You can improve your cloud deployment storage using a special type of network adapter that has remote direct memory access (RDMA) capability and can function at full speed with very low latency, while using very little CPU. For server roles or applications, this gives a remote file server performance comparable to local storage.

## 2 SMB Multichannel

This improvement allows aggregation of network bandwidth and network fault tolerance if multiple paths are available between the Server Message Block (SMB) client and the SMB server. Server applications can then take advantage of all available network bandwidth to be more resilient in the event of a network failure.

## 3 Scale-Out File Server

Scale-Out File Server lets you store server application data (such as Hyper-V virtual machine files) on file shares and obtain a similar level of reliability, availability, manageability, and high performance as you would expect from a storage area network. All file shares are online on all nodes simultaneously. File shares associated with this type of clustered file server are called scale-out file shares. This is an active/active configuration.

## 4 Cluster Shared Volumes

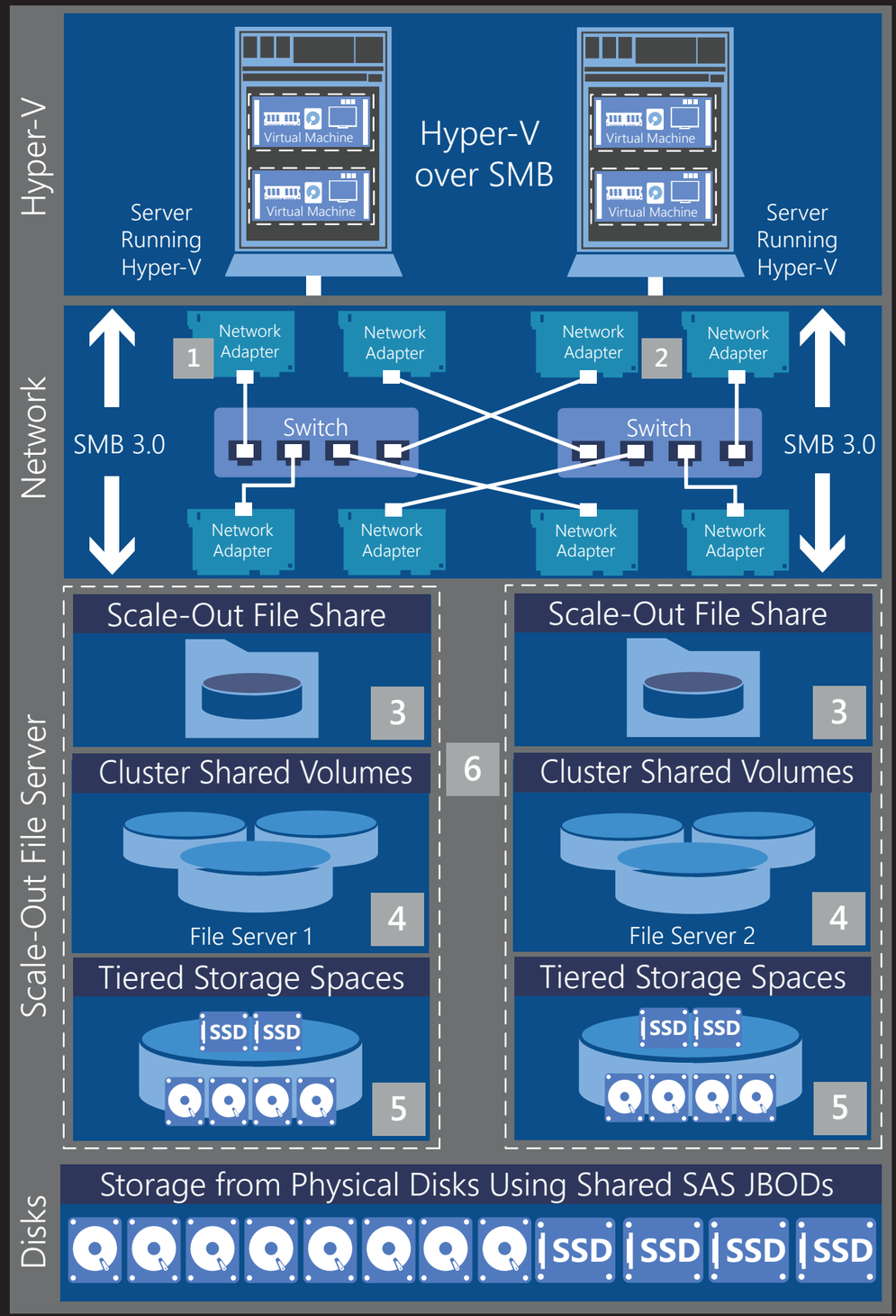
Cluster Shared Volumes (CSV) simplifies the configuration and management of clustered virtual machines. With CSV, multiple clustered virtual machines can use the same LUN (disk) and still live migrate from node to node independently of one another.

## 5 Tiered Storage Spaces

Storage Spaces delivers storage virtualization capabilities to Windows Server 2012 R2. The storage stack has been enhanced to incorporate two new abstractions, storage pools, and storage spaces. Storage pools are a collection of physical disks that enable you to aggregate disks, expand capacity in a flexible manner, and delegate administration. Storage spaces are virtual disks created from free space in a storage pool, with attributes such as resiliency level, storage tiers, fixed provisioning, and precise administrative control.

## 6 SMB Transparent Failover

You can easily perform hardware or software maintenance of nodes in a clustered file server by moving file shares between nodes without interrupting server applications that are storing data on these file shares. Also, if a hardware or software failure occurs on a cluster node, SMB 3.0 Transparent Failover lets file shares fail over to another cluster node without interrupting server applications that are storing data on these file shares.




## More information ....

- Understanding Storage Architecture
- Server Mesage Block 3.0
- Scale Out File Server
- Hyper-V and Failover Clustering
- Virtual Hard Disk Sharing
- Deduplication
- Storage Spaces
- Windows 8 App Server Posterpedia

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