Implement Failover Clustering

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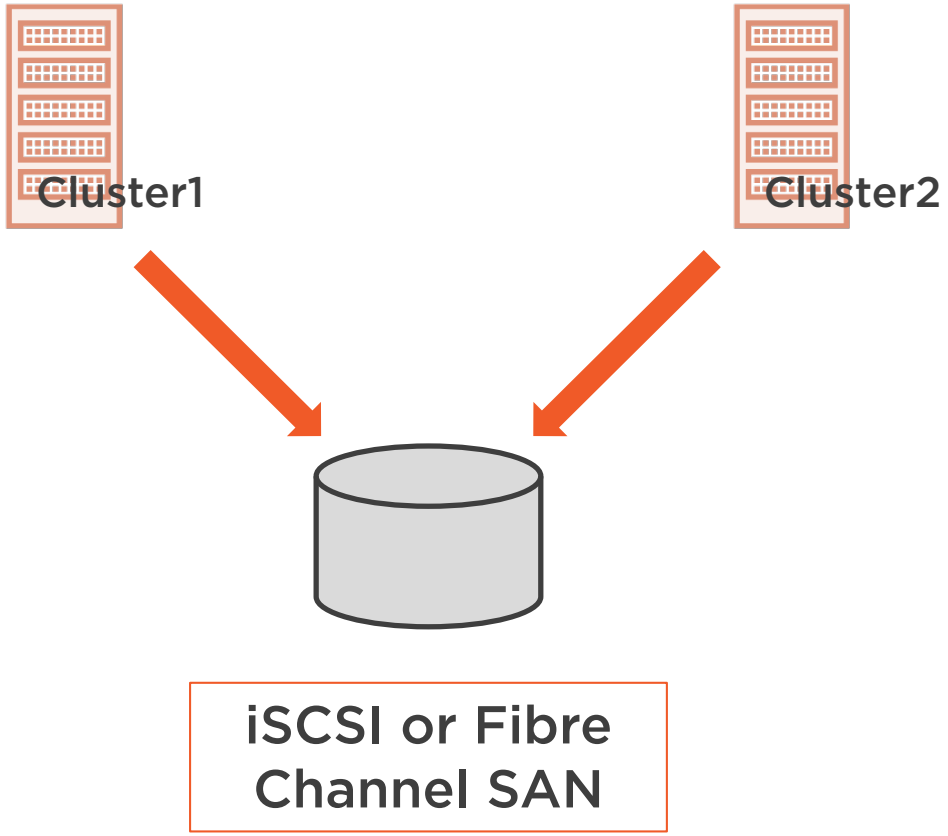
What This Module Covers

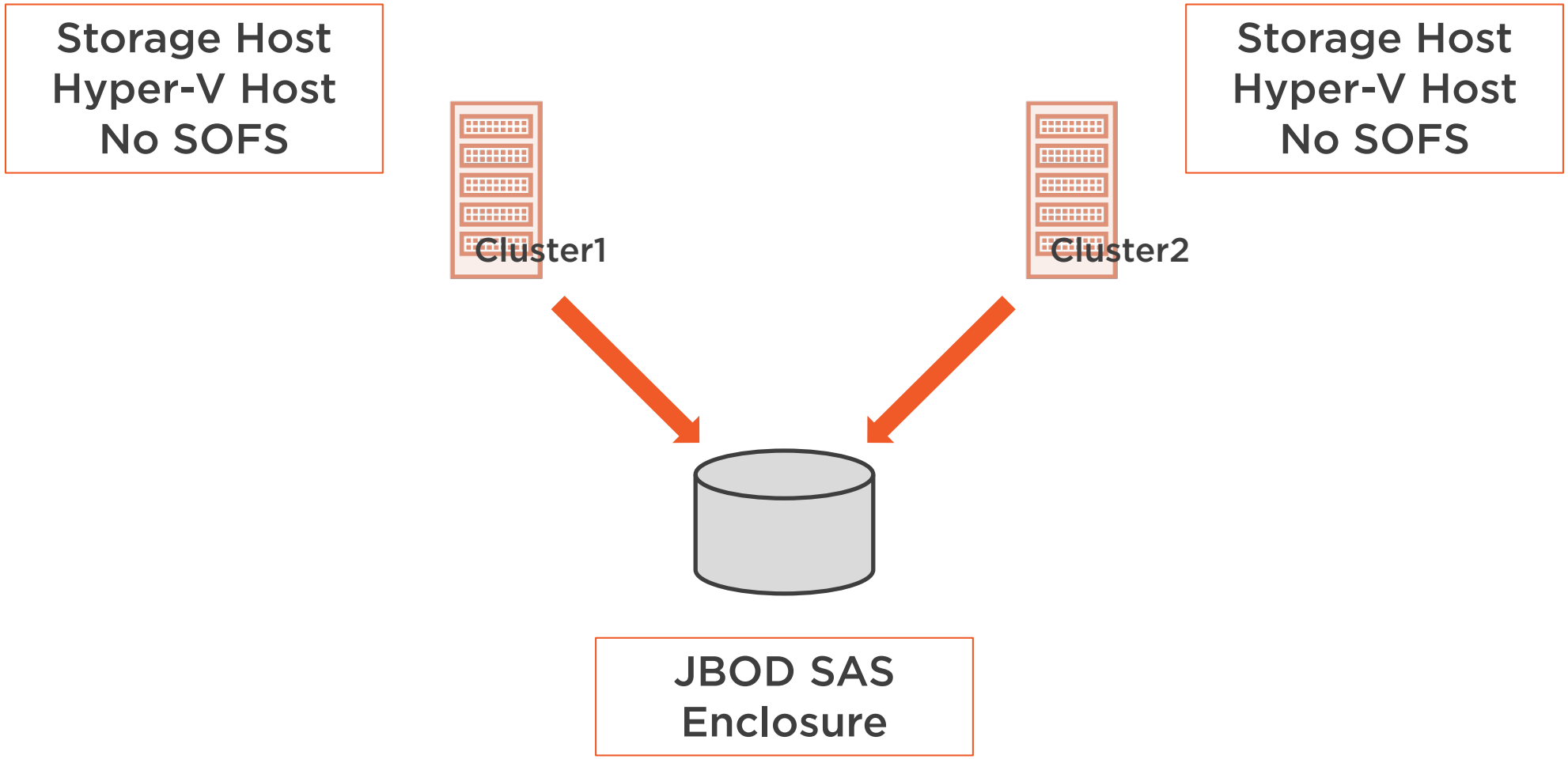
- Configure cluster networking
- Configure cluster storage
- Implement workgroup, single, and multi-domain clusters
- Configure quorum
- Implement Cloud Witness
- Configure clusters without network names
- Implement Cluster Aware Updating
- Implement cluster OS rolling upgrade
- Restore single node or cluster configuration
- Determine usage scenarios for guest clustering
- Implement Shared VHDX for guest clustering

Understand Windows Failover Clustering

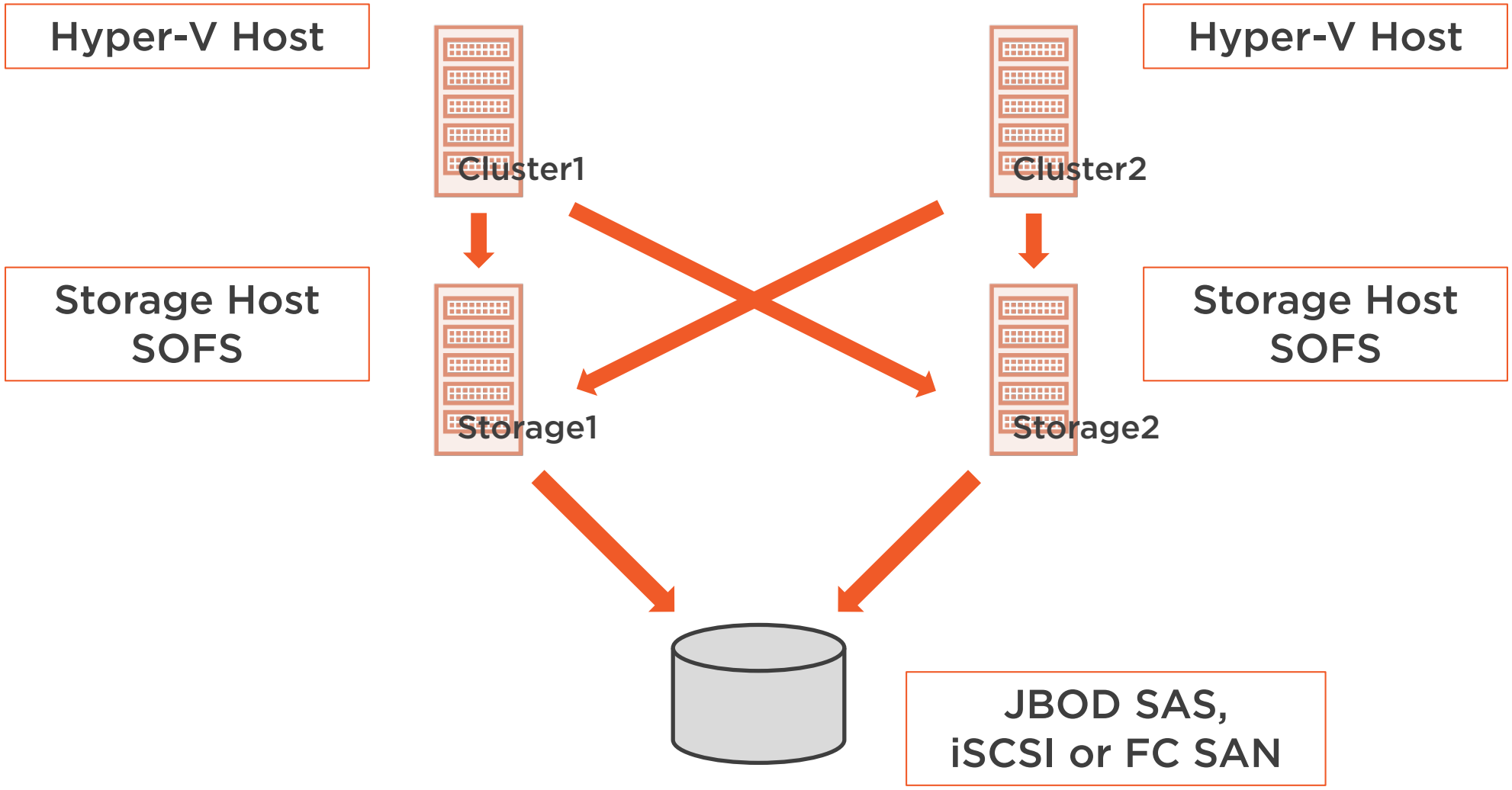
Understand Windows Failover Clustering
(Option 1, Traditional)



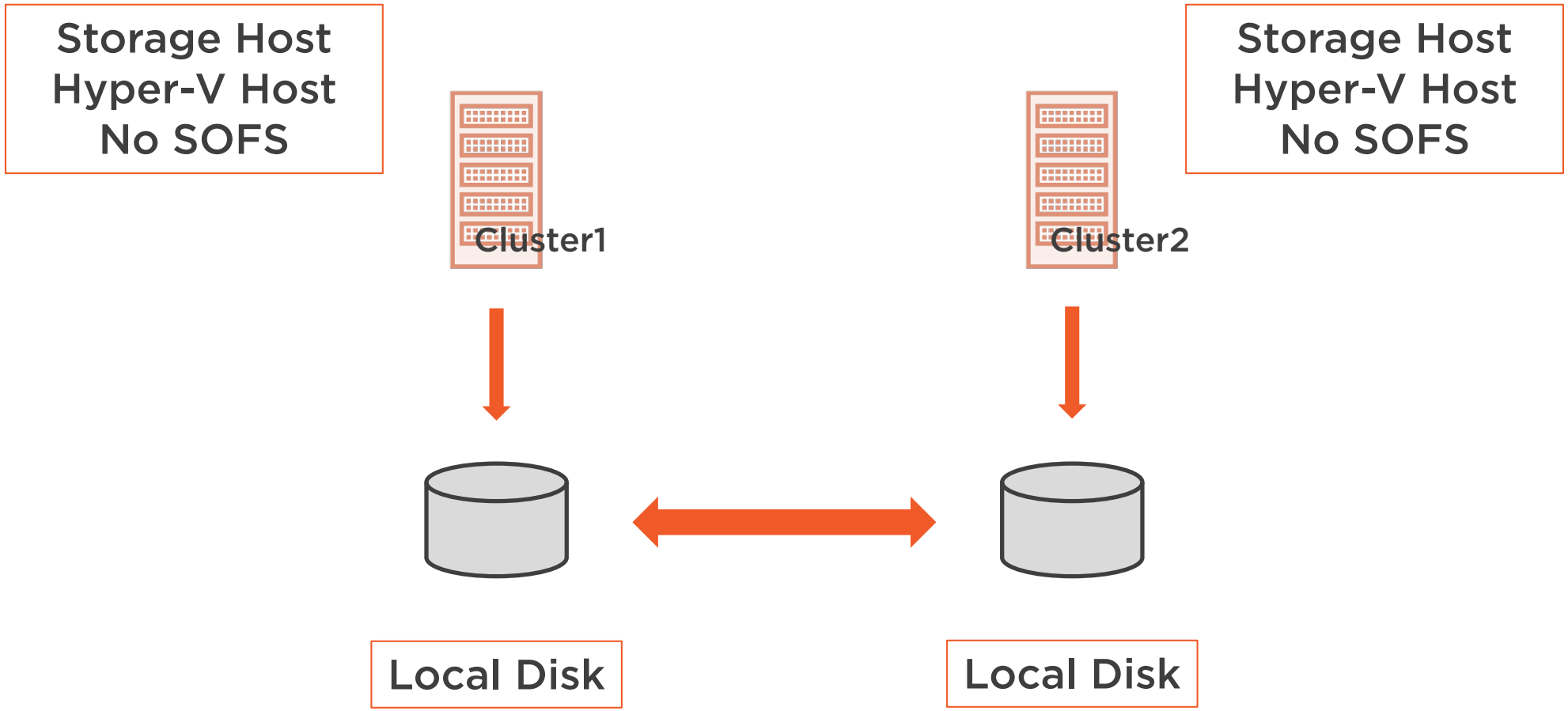
Understand Windows Failover Clustering
(Option 2, Locally-attached SAS)



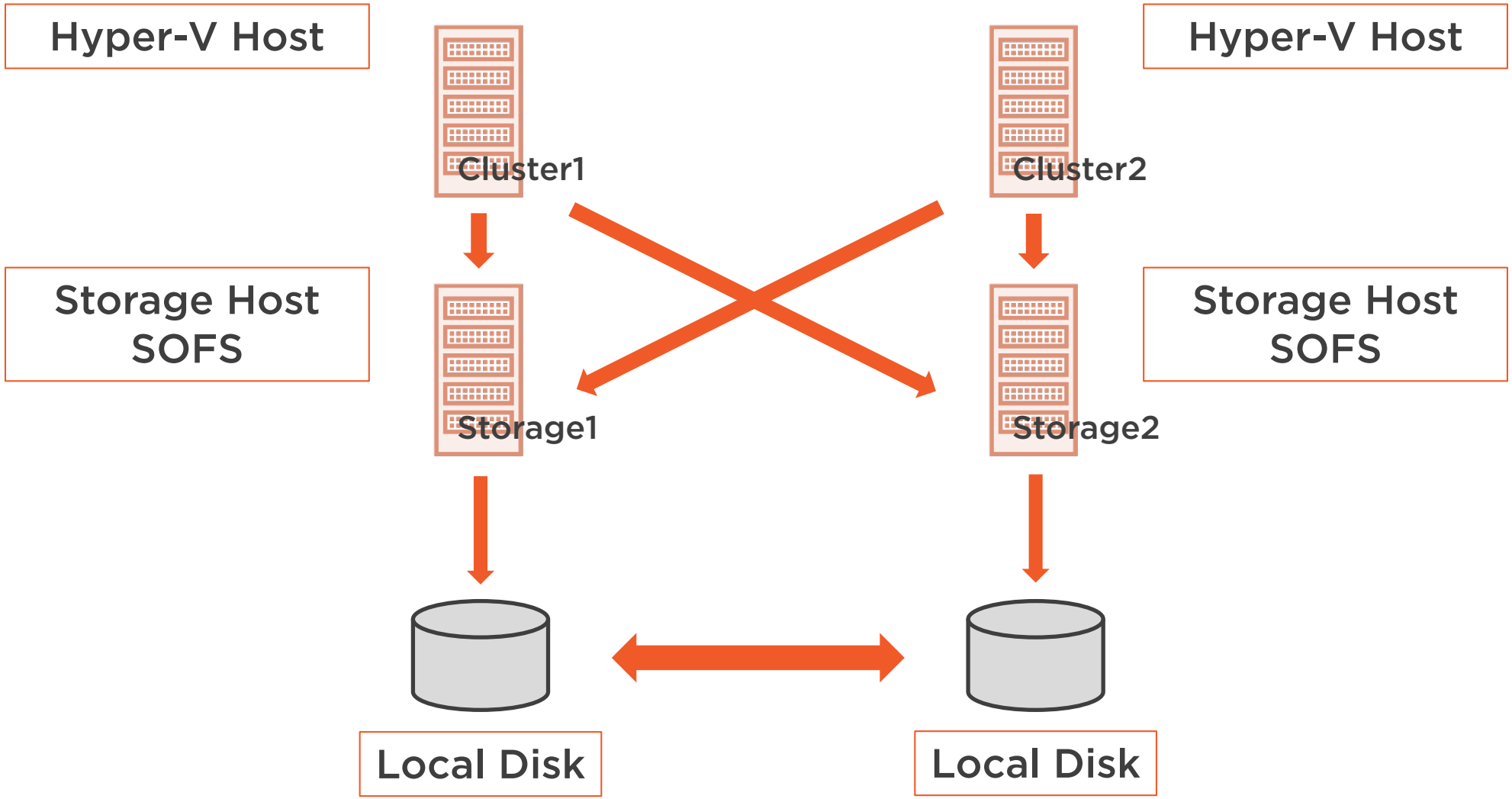
Understand Windows Failover Clustering
(Option 3, Two-tier and Remote Storage)



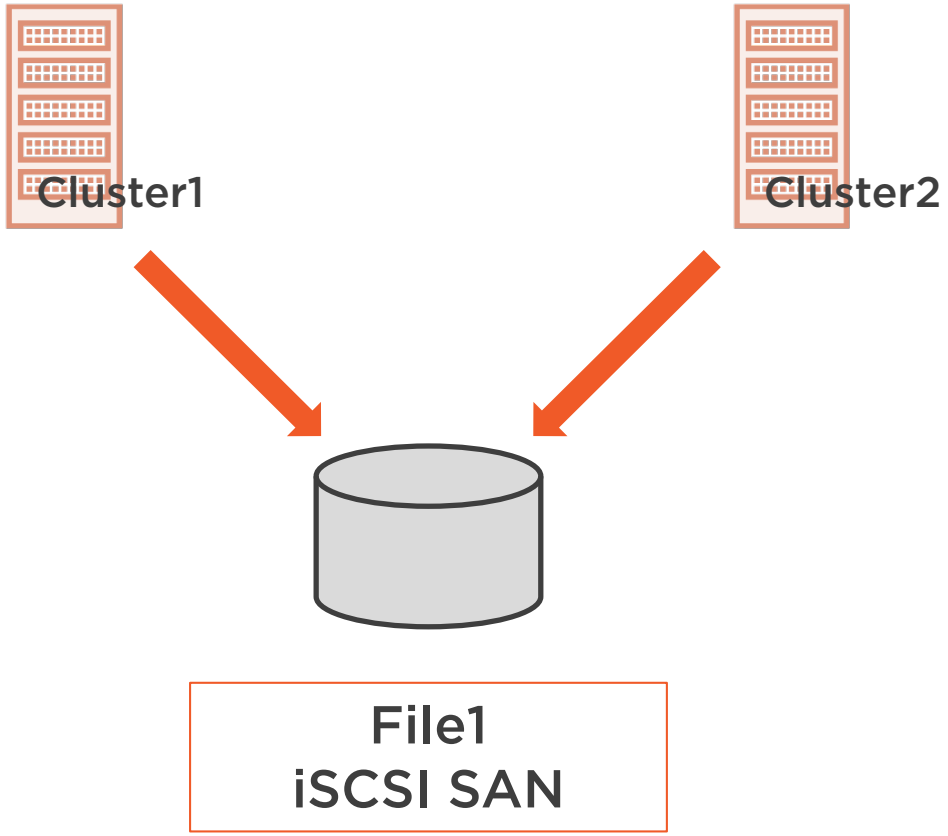
Understand Windows Failover Clustering
(Option 4, Hyperconverged S2D)



Understand Windows Failover Clustering
(Option 5, Disaggregated S2D)



Configure Cluster Networking
(Option 1, Traditional)



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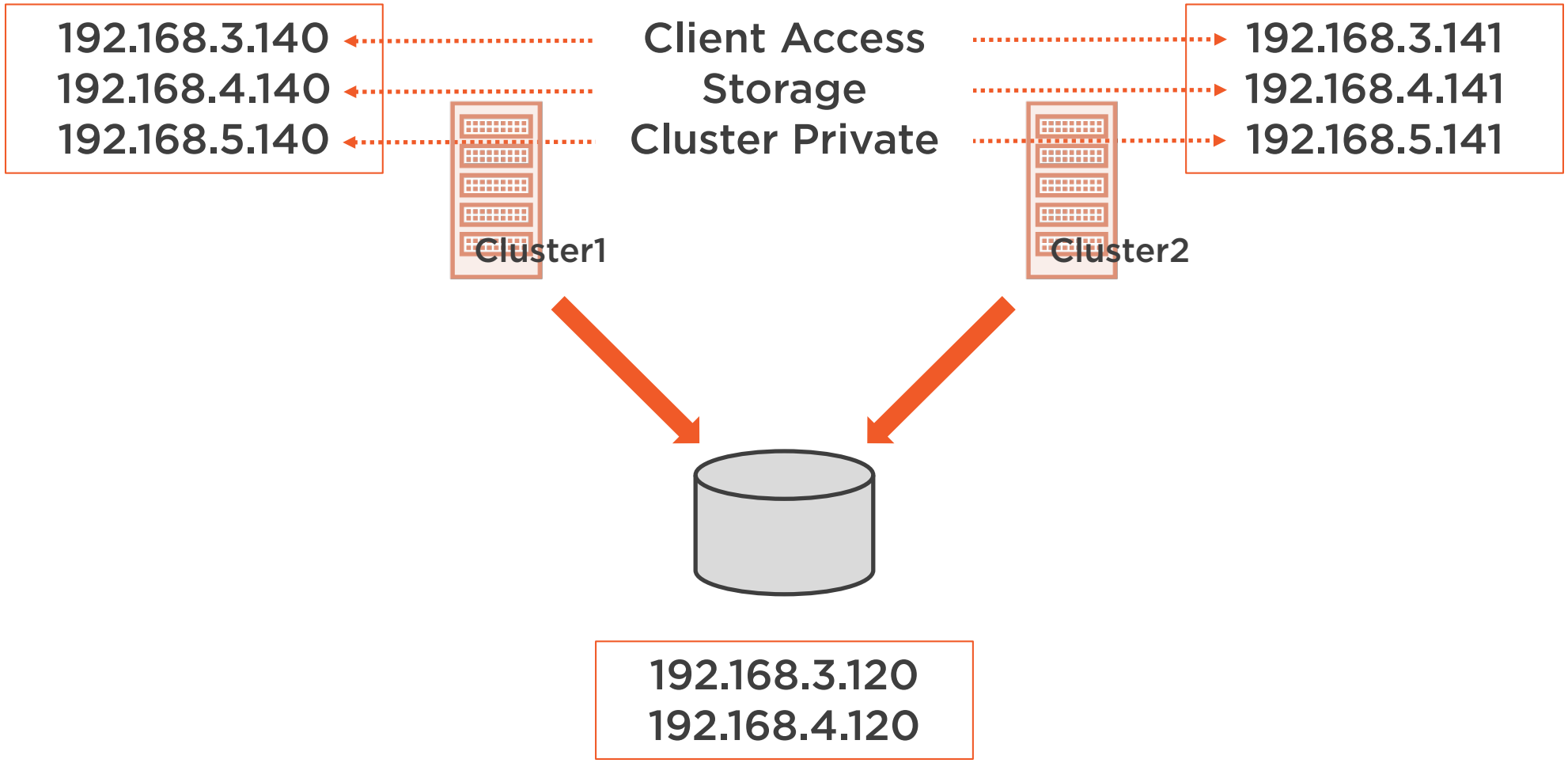


Implement Workgroup and Multi-Domain Clusters

Create a local user on each cluster node with same username and password

New-ItemProperty -path HKLM:\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System -Name LocalAccountTokenFilterPolicy -Value 1

Configure primary DNS suffix as well as all other domain suffixes on each node

Configure a DNS admin access point

New-Cluster –Name <Name> -Node <Nodes > -AdministrativeAccessPoint DNS

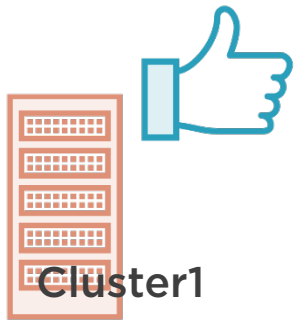
Configure a cloud or disk witness

Configure Quorum

“The minimum number of members that must be present to make the proceedings of a meeting valid.”

- Definition of “quorum”

Configure Quorum



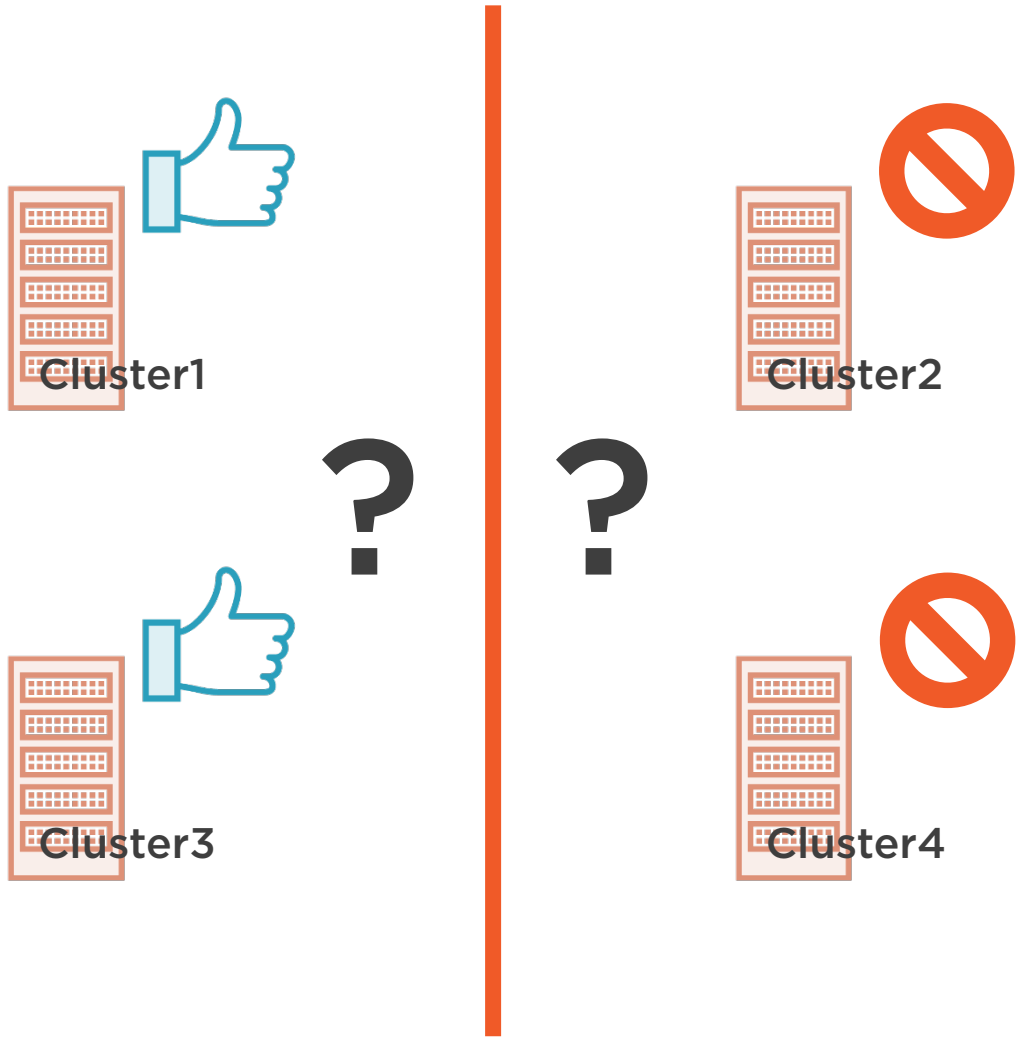
Configure Quorum

Node Majority

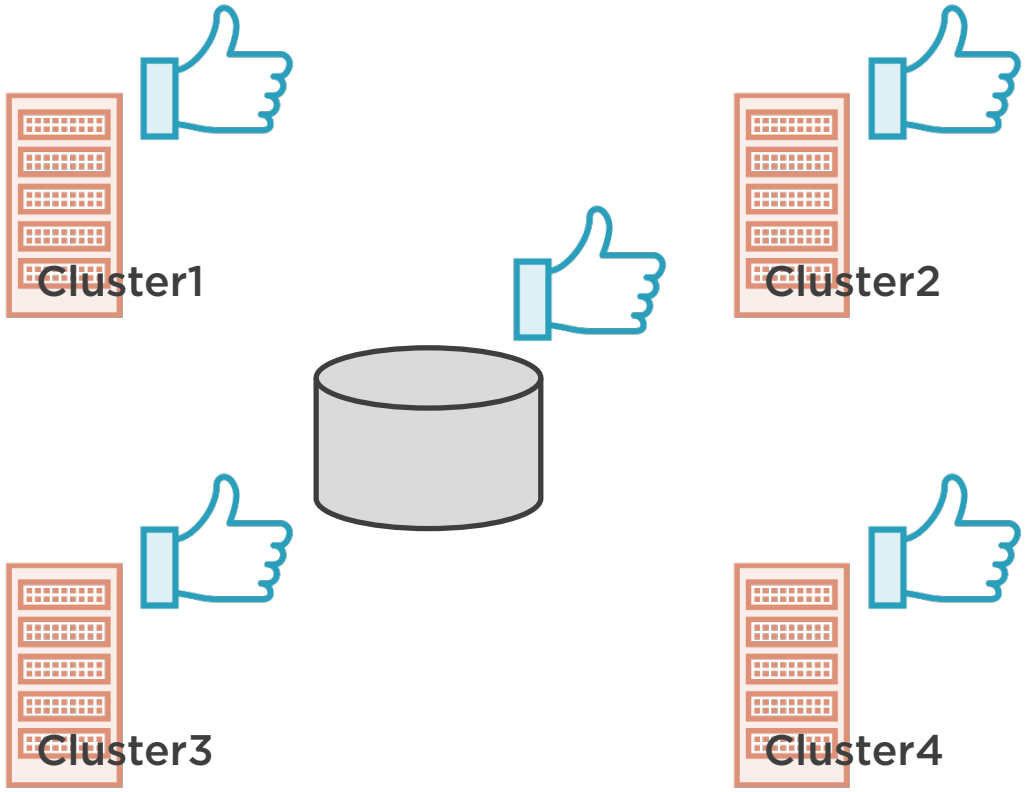
Configure Quorum

Configure Quorum

Configure Quorum

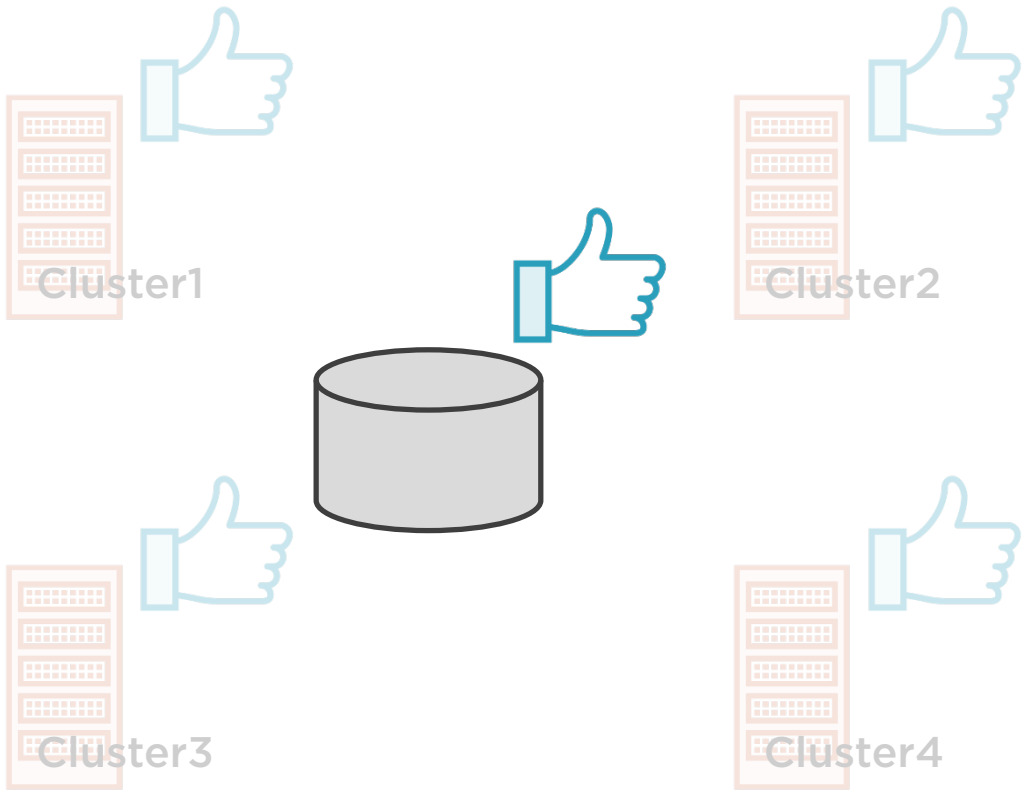


Configure Quorum



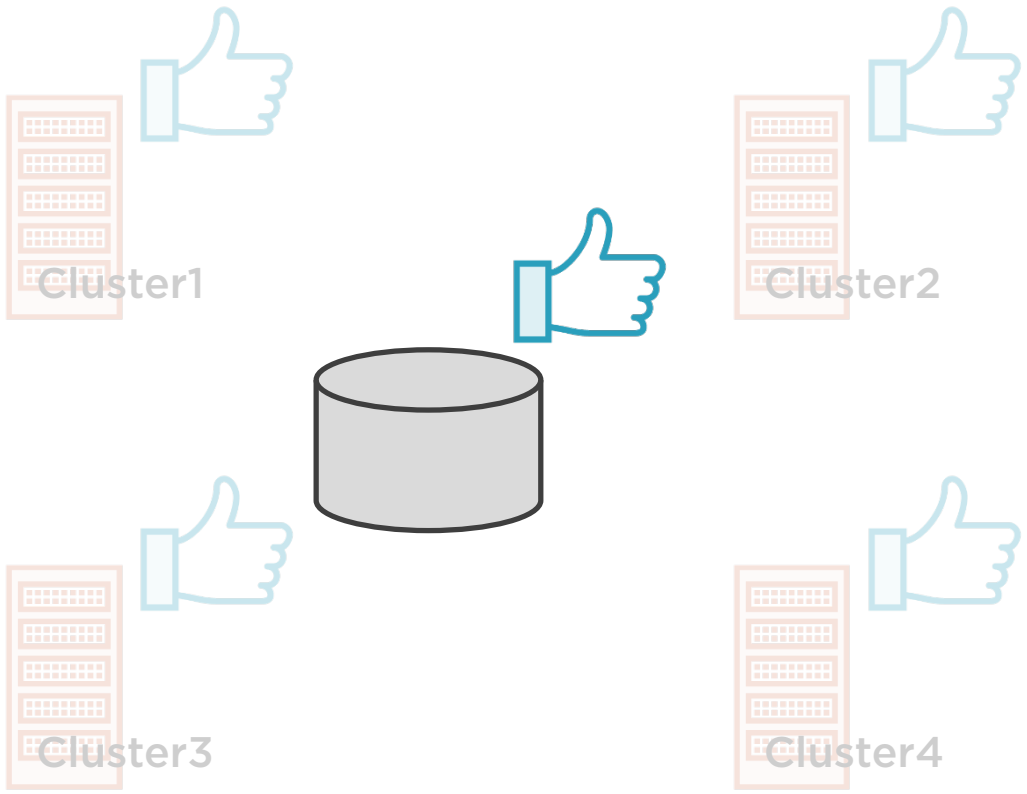
Configure Quorum

- Node and Disk Majority
- Node and File Share Majority
- Node and Cloud Majority



Configure Quorum

- Disk Witness
- File Share Witness
- Cloud Witness



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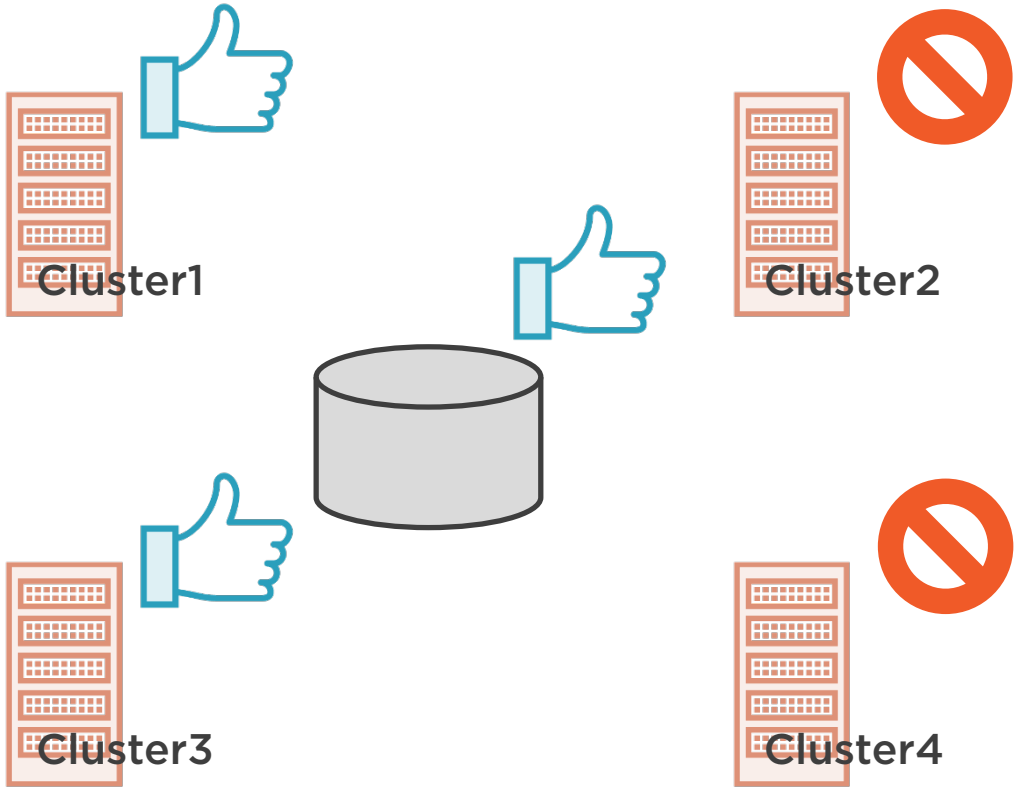

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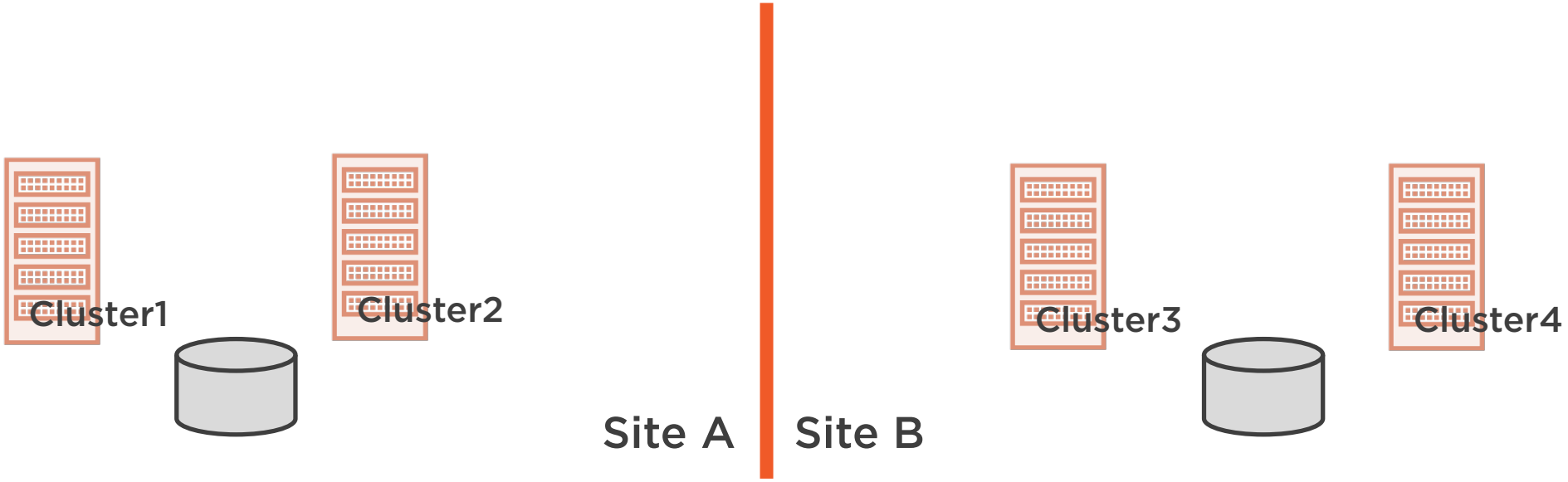

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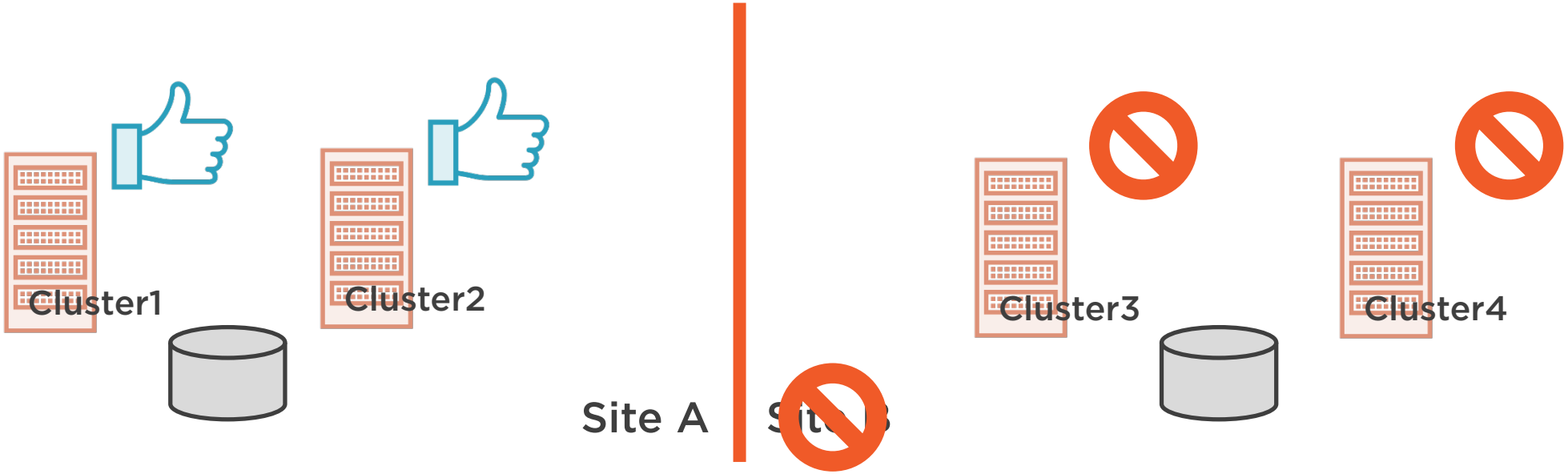

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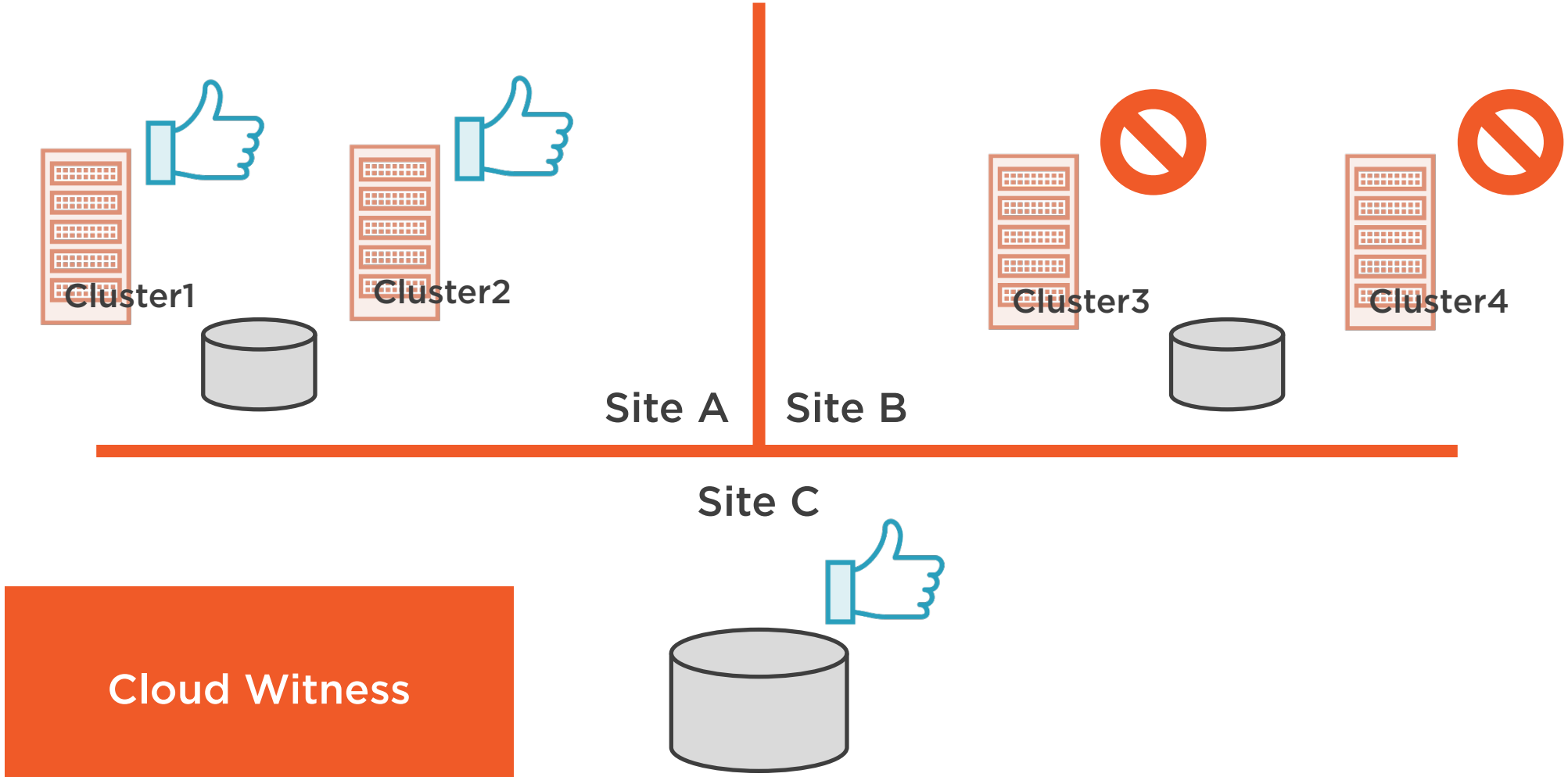

Implement Cluster OS Rolling Upgrade

Zero-downtime upgrade for Hyper-V and SOFS cluster roles

Other cluster roles will be unavailable during the upgrade process

Upgrade process uses existing equipment

Reversible up until cluster functional level is upgraded to Windows Server 2016

Guest clusters using shared VHDX files are not supported

Implement Cluster OS Rolling Upgrade

Pause node and drain roles

Evict node from cluster

Perform a clean OS install

Add the Failover Clustering feature

Configure networking and storage

Rejoin the node to the cluster

Reinstall cluster role and data

Repeat these process on remaining nodes

Update the cluster functional level

Restore Single Node or Cluster Configuration

Non-authoritative Restore

Restores a single node, but does not roll back the cluster configuration

Authoritative Restore

Rolls back the cluster configuration to the content stored in the backup

Restore Single Node or Cluster Configuration

Non-authoritative Restore

Restores entire node
Node reboot required to complete recovery

Authoritative Restore

Restores cluster database
Cluster service restart required to complete recovery

Restore Single Node or Cluster Configuration

Non-authoritative Restore

wbadmin start sysstaterecovery -version:<ver>

Authoritative Restore

wbadmin start recovery -version:<ver> -itemtype:app -items:cluster

Determine Usage Scenarios for Guest Clustering

DFS Namespace Server	DHCP Server	File Server
Generic App Generic Script Generic Service	iSNS Server	WINS Server

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