Implement Storage Spaces Direct

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What This Module Covers

Determine scenario requirements for implementing Storage Spaces Direct

Implement a hyper-converged Storage Spaces Direct scenario in a cluster

Enable Storage Spaces Direct using Windows PowerShell

Configure and optimize CSVs

Implement a disaggregated Storage Spaces Direct scenario in a cluster
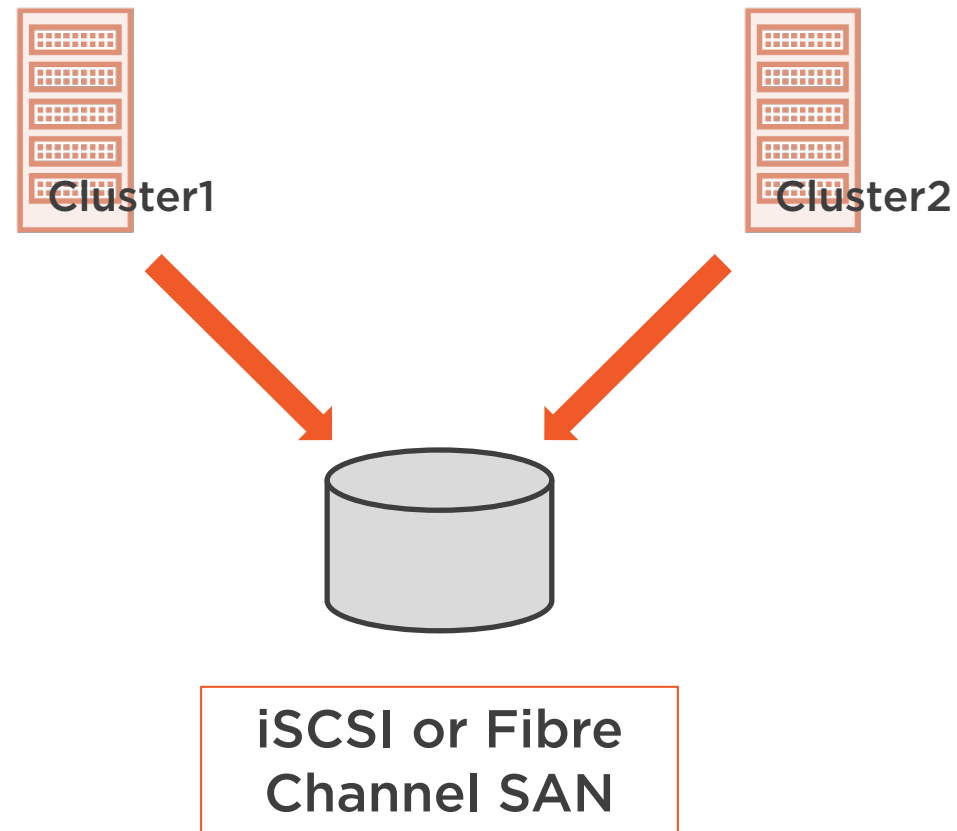
Implement SOFS

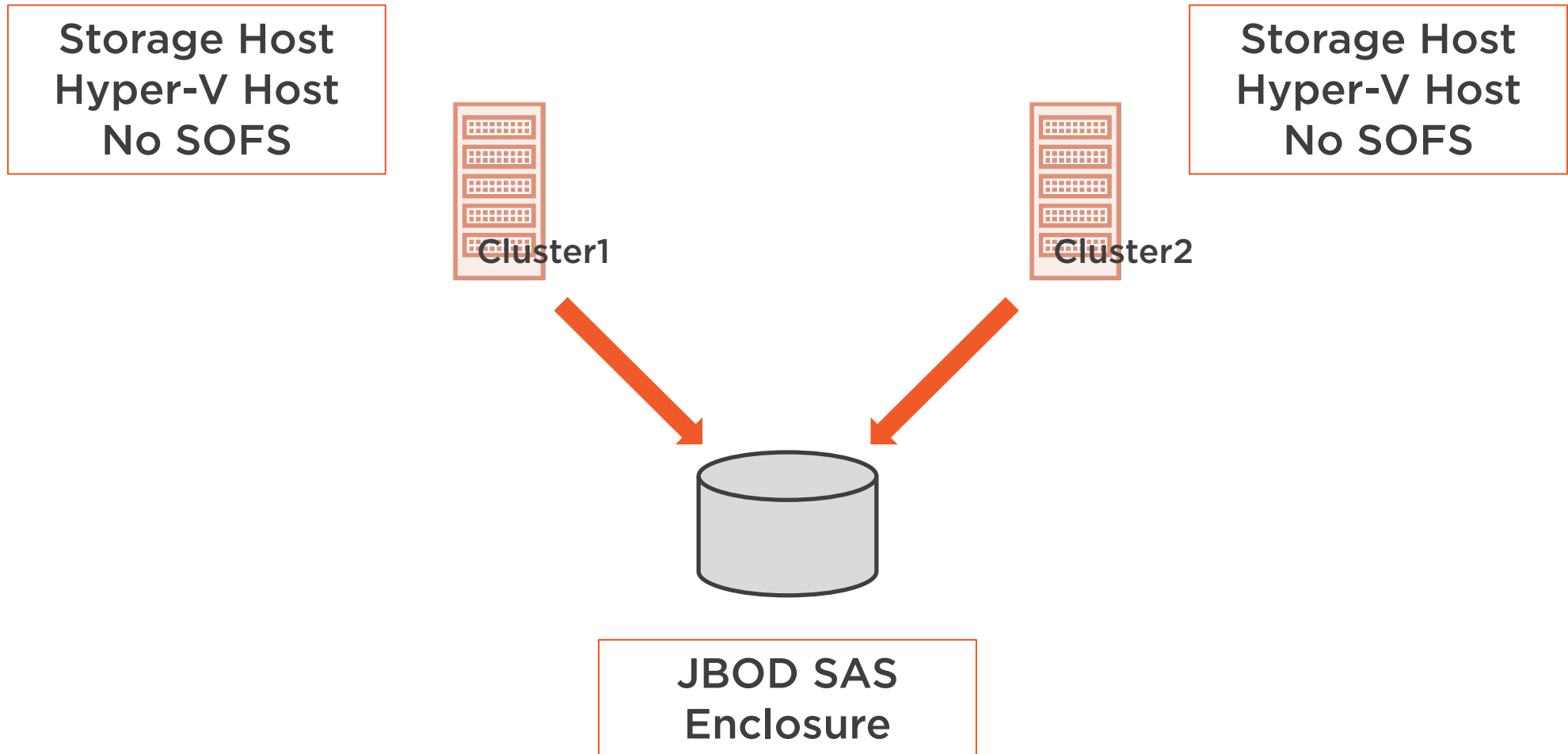# Determine Scenario Requirements for S2D

Determine Scenario Requirements for S2D
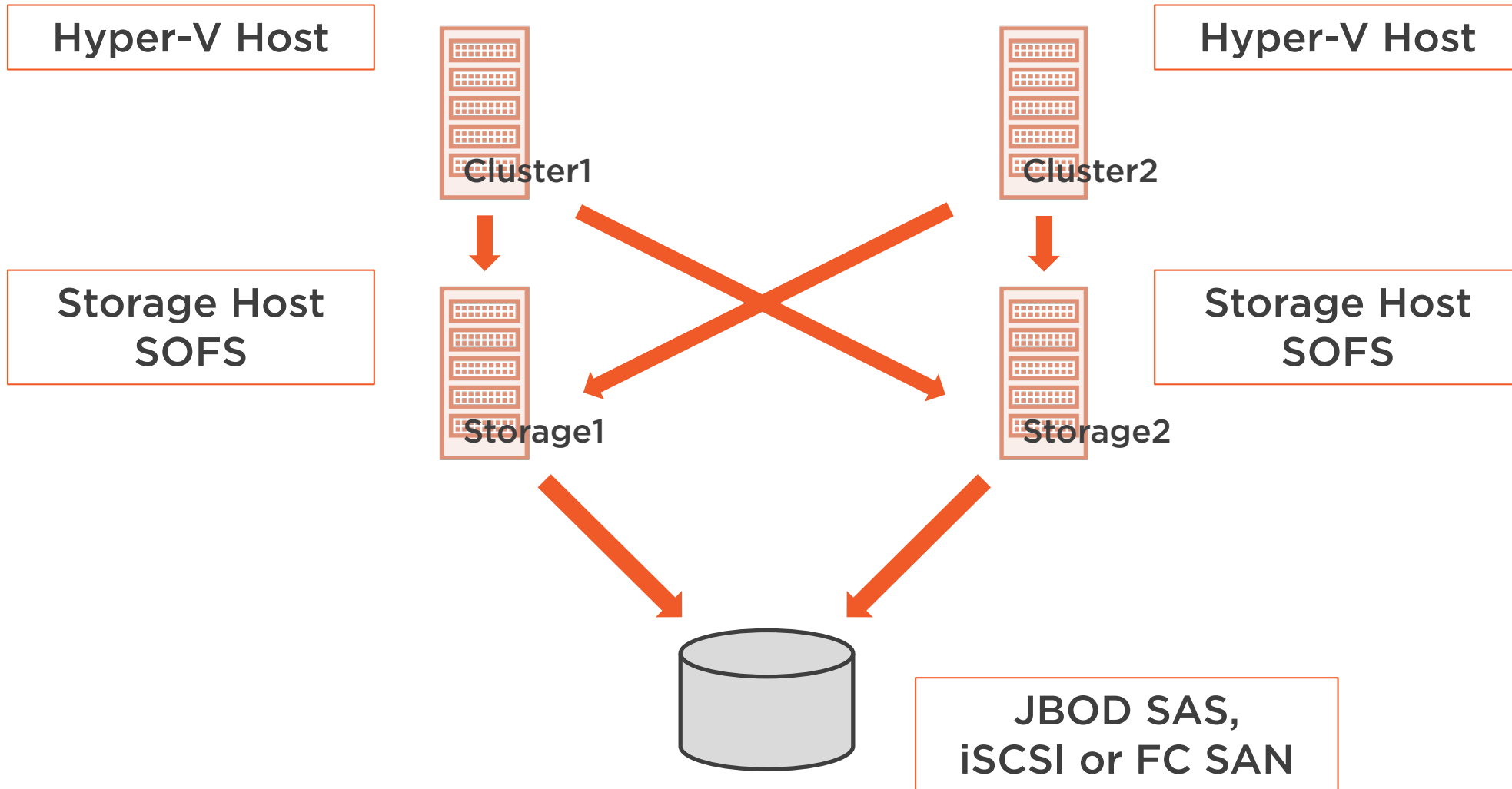## (Option 1, Traditional)

Determine Scenario Requirements for S2D
(Option 2, Locally-attached SAS)

**Storage Host
Hyper-V Host
No SOFS**

**Storage Host
Hyper-V Host
No SOFS**

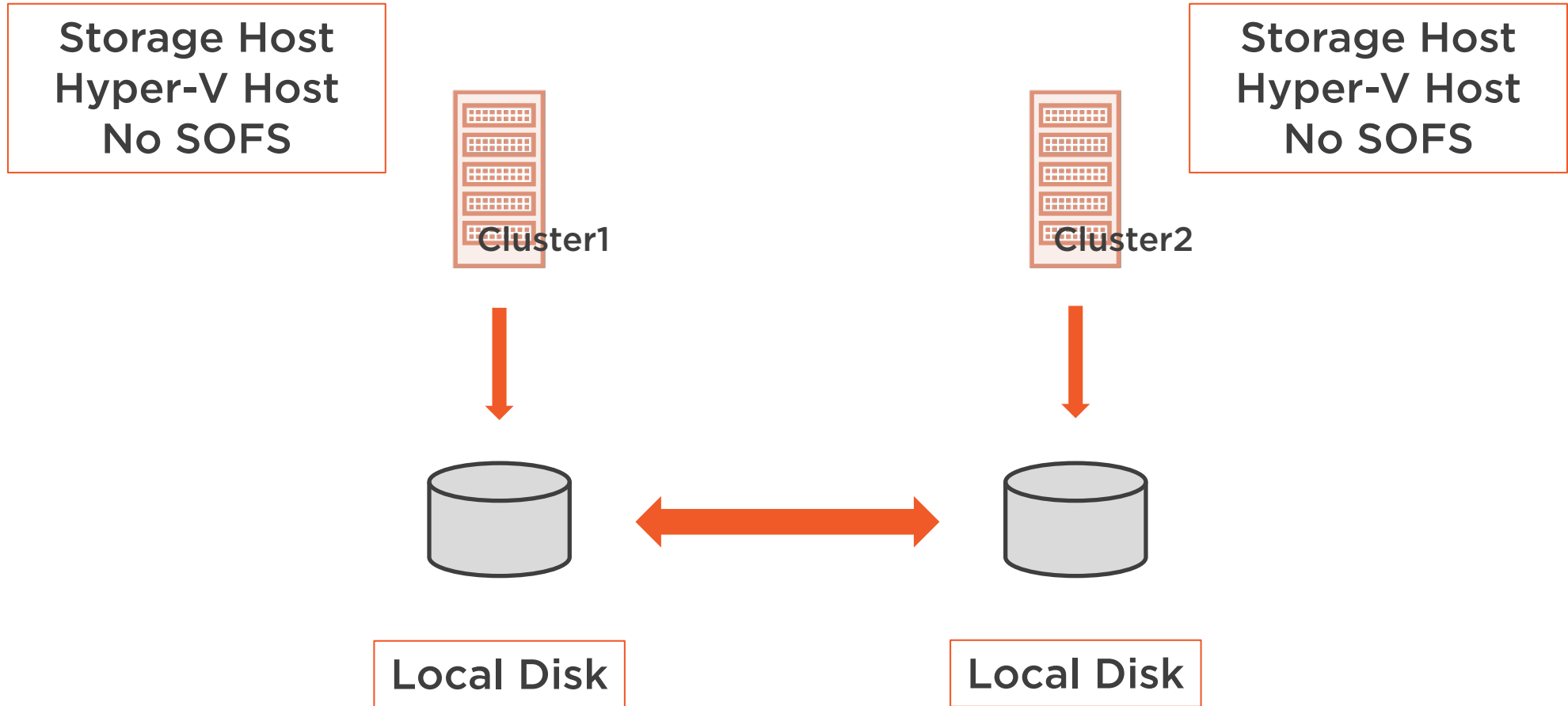Cluster1

Cluster2

**JBOD SAS
Enclosure**

Determine Scenario Requirements for S2D
(Option 3, Two-tier and Remote Storage)

Determine Scenario Requirements for S2D
(Option 4, Hyperconverged S2D)

Storage Host
Hyper-V Host
No SOFS

Storage Host
Hyper-V Host
No SOFS

Cluster1

Cluster2

Local Disk

Local Disk

Determine Scenario Requirements for S2D
(Option 5, Disaggregated S2D)
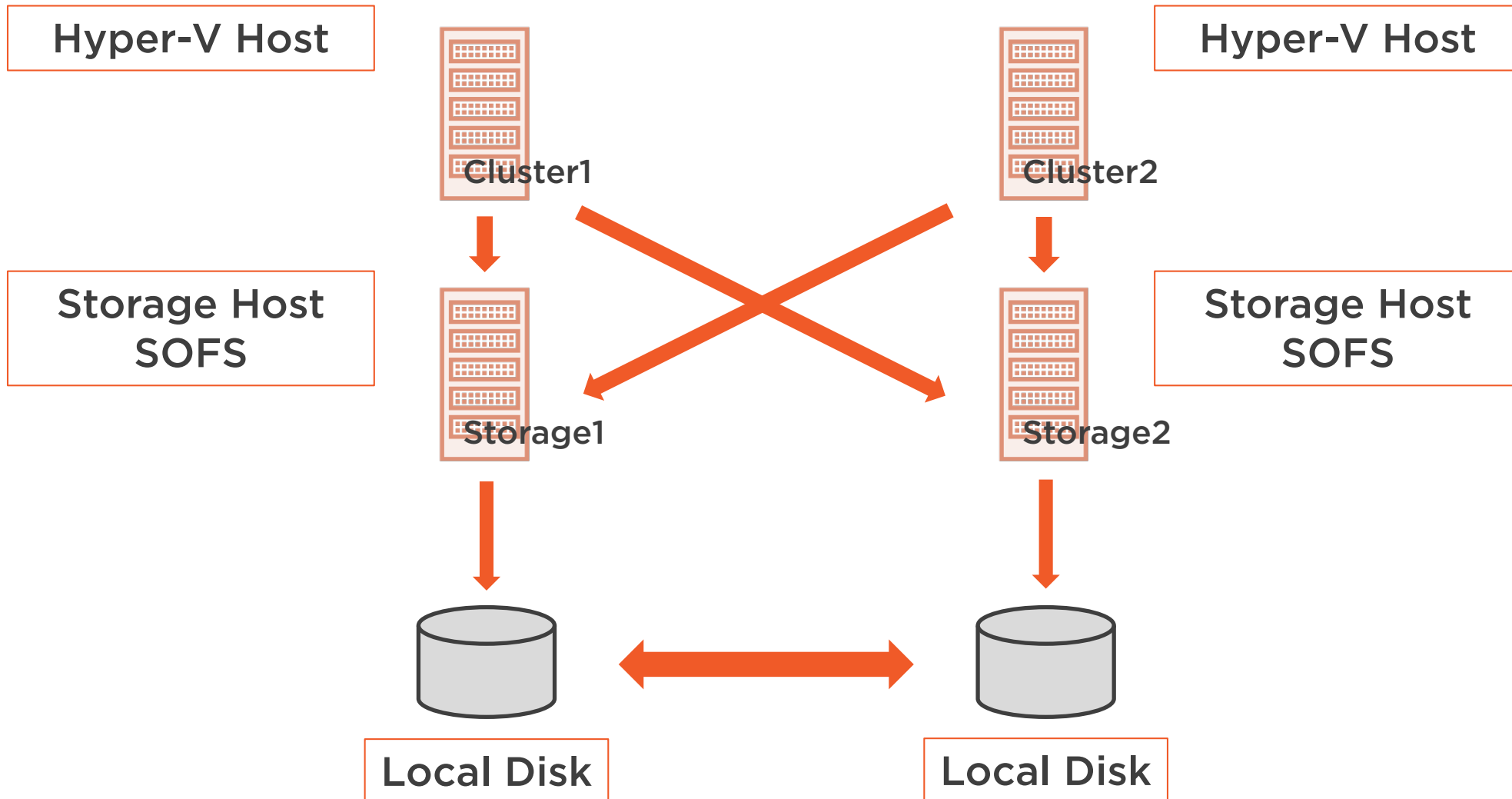
S2D Resiliency Configurations

S2D Resiliency Configurations
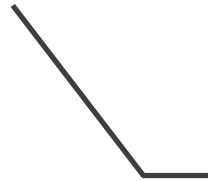
Two-way mirroring

Three-way mirroring

Single parity

Dual parity

Mixed

S2D Resiliency Configurations

(1) **Two-way mirroring**

(2) **Three-way mirroring**

(1) **Single parity**

(2) **Dual parity**

(2) **Mixed**

Failure Tolerance

S2D Resiliency Configurations

(1) (50%)   **Two-way mirroring**

(2) (33%)   **Three-way mirroring**

(1) (66.7–87.5%)   **Single parity**

(2) (50-80%)   **Dual parity**

(2) (33.3–80%)   **Mixed**

Storage Efficiency

S2D Resiliency Configurations

(2x) (1) (50%)   **Two-way mirroring**

(3x) (2) (33%)   **Three-way mirroring**

(3x) (1) (66.7–87.5%)   **Single parity**

(4x) (2) (50-80%)   **Dual parity**

(4x) (2) (33.3–80%)   **Mixed**

Minimum Fault Domains

S2D Resiliency Configurations

Two-way mirroring **Three-way mirroring**	**Performance Tier**
Single parity **Dual parity** **Mixed**	**Capacity Tier**

S2D Resiliency Configurations

Fast, but storage wasteful

Two-way mirroring

Three-way mirroring

Single parity

Dual parity

Mixed
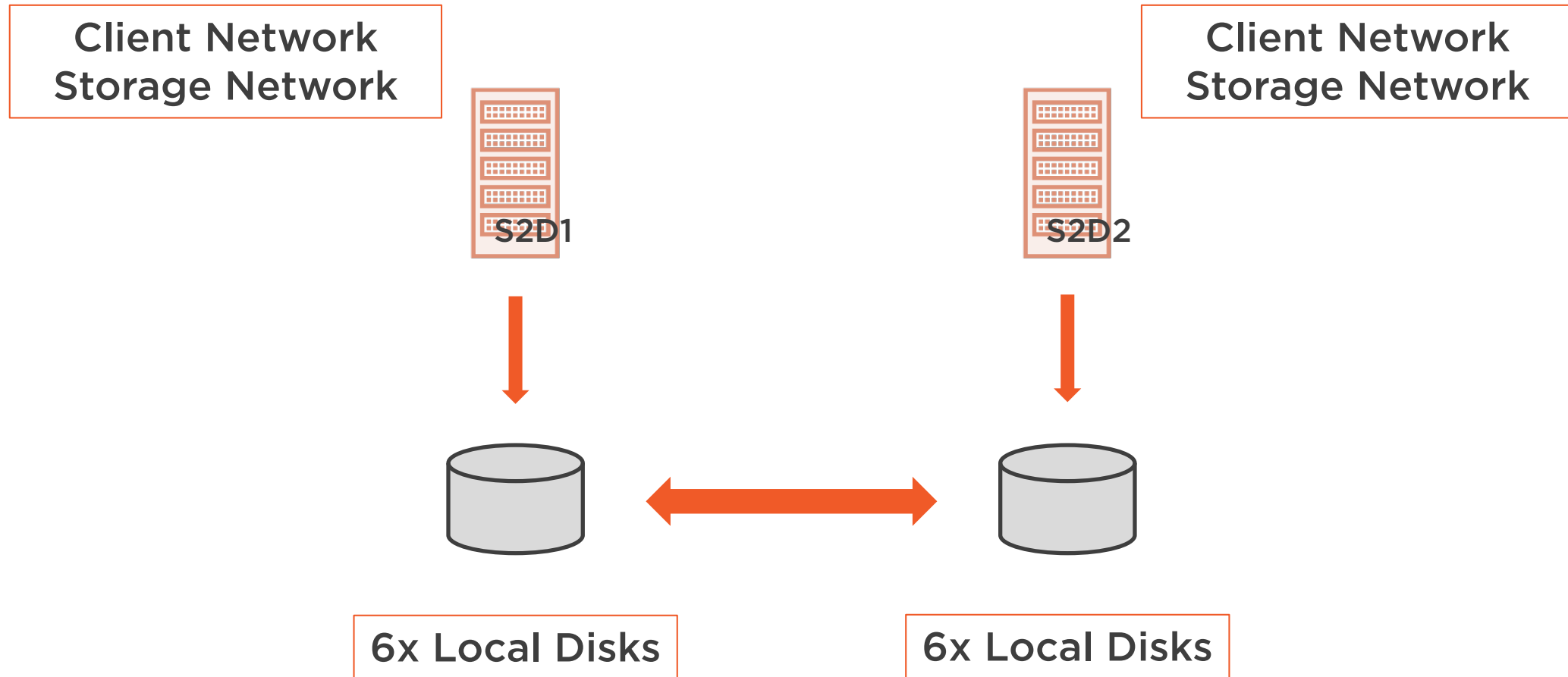
Performance Tier

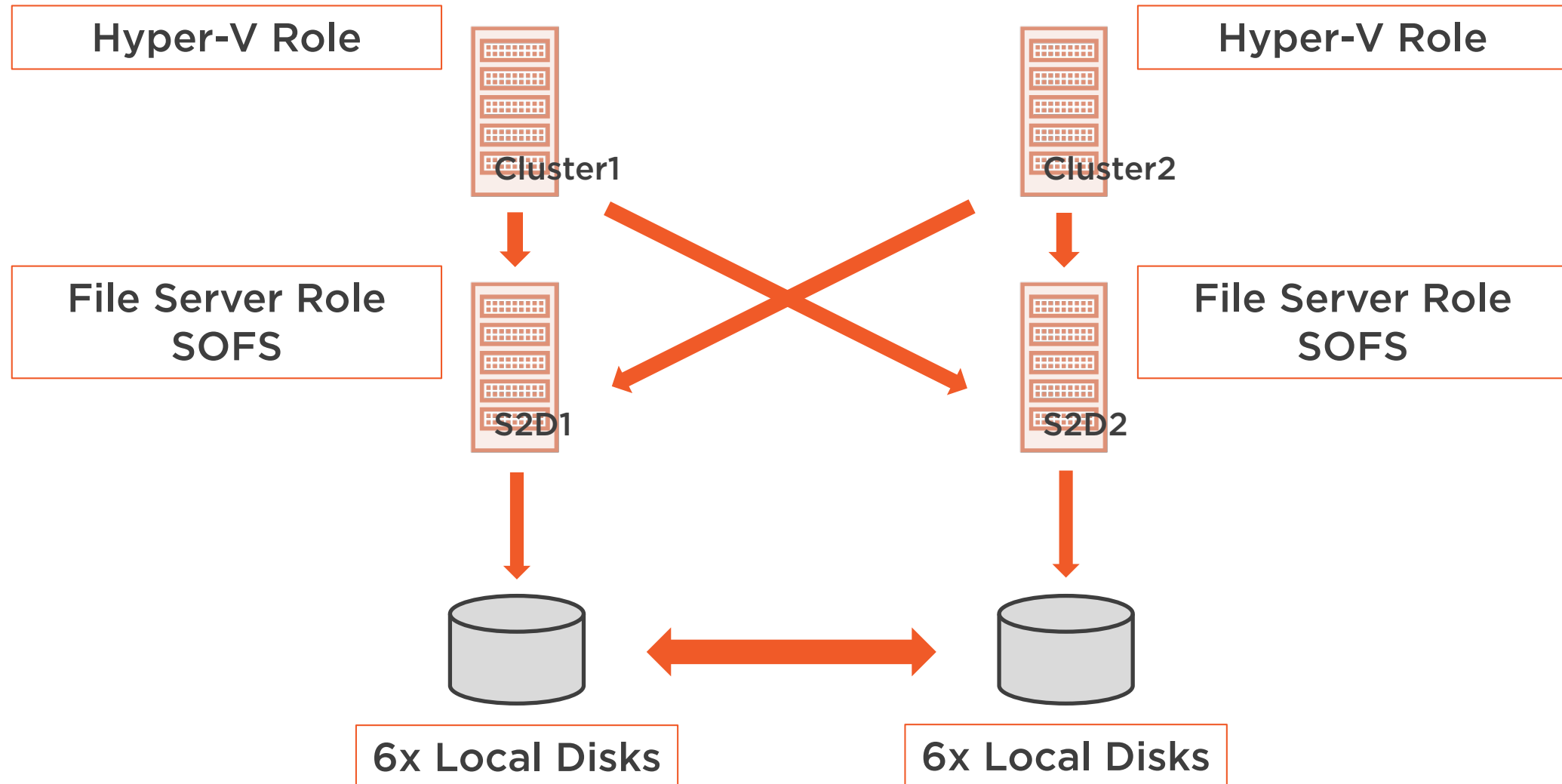Capacity Tier

Slow, but storage efficient

Implement Hyperconverged S2D

Client Network
Storage Network

Client Network
Storage Network

S2D1

S2D2

6x Local Disks

6x Local Disks

Implement Disaggregated S2D

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