1Gbps, 10Gbps, 40Gbps Ethernet support for maximum speed
Distance of up to 50 miles (80 km) in case of point to point fibre optic connection
Perfect fit also for standard cluster solutions
Allows use of less expensive SATA drives
Easy to configure and manage
Compared to SAS or FibreChannel, JBODs are not required
Optional use of RAID controllers
Advanced Metro High Availability cluster for SMB, NFS and iSCSI

Open-E JovianDSS includes failover functionality for SMB, NFS and iSCSI, enabling you to set up High Availability Load-Balanced Storage Clusters that ensure reliability and redundancy through failover in case of a server crash. By using the Open-E JovianDSS Advanced Metro High Availability Cluster Feature Pack, you can create High Availability for two server nodes over Ethernet using a storage at each location (Dual Storage). Since the connection of cluster communication and data mirroring between nodes works over Ethernet, the nodes might be located far from each other as a (stretched) metro storage cluster. It can be 50 miles (80 km) in case of point to point fibre optic connection, or even more when using an additional switch between nodes - provided that network latency will not exceed 5 ms. The Feature Pack also supports configurations of the Open-E JovianDSS Standard HA Cluster Feature Pack.

SAN (iSCSI) Failover

NAS (SMB, NFS) Failover

Advanced HA cluster management

With the HA cluster management software functionalities allows you can quickly access all features related to your cluster setup. Whether for initial configuration or re-configuration after a failover – everything is in one place and guarantees ease of use for the storage administrator.

High availability capabilities

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HA cluster architecture</td>
<td></td>
</tr>
<tr>
<td>Physical drives shared between nodes</td>
<td></td>
</tr>
<tr>
<td>Metro storage cluster</td>
<td>Yes (SMB, NFS, iSCSI)</td>
</tr>
<tr>
<td>Independent Virtual IPs for HA Cluster</td>
<td>Yes</td>
</tr>
<tr>
<td>Max. clustered volume size</td>
<td>Unlimited</td>
</tr>
<tr>
<td>Max. clustered storage size</td>
<td>Unlimited</td>
</tr>
<tr>
<td>Persistent Reservation</td>
<td>Yes</td>
</tr>
<tr>
<td>Synchronization</td>
<td></td>
</tr>
<tr>
<td>Node replacement without cluster downtime</td>
<td>Yes</td>
</tr>
</tbody>
</table>

High availability architecture examples:

- Cluster in a Box (CiB)
- Common Storage Cluster over SAS
- Cluster over SAS with internal expander
- Cluster with multiple JBODs over FC
- Cluster with multiple JBODs over SAS/FC (with ATTO bridges)
- Cluster over Ethernet

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Examples of deployments

With Open-E JovianDSS you can easily setup a Metro Cluster that best fits your individual needs, using various protocols, hardware components and virtualization platforms.

Single VIP over Bond
Bonding for NFS / SMB, single iSCSI Path

Double VIP
Multipath iSCSI, single NFS / SMB Path

NOTE: Ring path (heartbeat) and Ping nodes must run on Active-Backup bonding. Ring and Ping IP must be configured in the same network subnet.

NOTE: It is strongly recommended to use direct point-to-point and if possible 10Gb connection for the remote disk paths. The Remote Disks connection can work over the switch, but the most reliable is a direct connection.
Double VIP over Bonds
Multipath iSCSI, Bonding for NFS / SMB

Client-1:
ESXi, XEN, Hyper-V

eth0: 192.168.21.101 (SMB, NFS or iSCSI)
eth1: 192.168.31.101 (SMB, NFS or iSCSI)
eth0 or eth1: 192.168.4.101 (Ping Node)

JovianDSS node-a

Switch 1

Storage Client Access,
bond0: 192.168.0.220 (iSCSI-MPIO)

Storage Client Access,
bond0: 192.168.2.220 (iSCSI-MPIO)

Ring, Ping Node
bond2: 192.168.4.220

Remote Disks
IP: 192.168.6.220

Remote disks mirroring paths for Cluster over Ethernet

NOTE:
Ring path (heartbeat) and Ping nodes must run on Active-Backup bonding. Ring and Ping IP must be configured in the same network subnet.

Client-2:
ESXi, XEN, Hyper-V

eth0: 192.168.21.102 (SMB, NFS or iSCSI)
eth1: 192.168.31.102 (SMB, NFS or iSCSI)
eth0 or eth1: 192.168.4.102 (Ping Node)

JovianDSS node-b

Switch 2

Storage Client Access,
bond0: 192.168.0.221 (iSCSI-MPIO)

Storage Client Access,
bond0: 192.168.2.221 (iSCSI-MPIO)

Ring, Ping Node
Bond (active backup)
bond0: 192.168.4.221

Remote Disks
IP: 192.168.6.221

NOTE:
Ring path (heartbeat) and Ping nodes must run on Active-Backup bonding. Ring and Ping IP must be configured in the same network subnet.

Double VIP
Multipath iSCSI, single NFS / SMB Path, Bond for mirroring

Client-1:
ESXi, XEN, Hyper-V

eth0: 192.168.21.101 (SMB, NFS or iSCSI)
eth1: 192.168.31.101 (SMB, NFS or iSCSI)
eth0 or eth1: 192.168.4.101 (Ping Node)

JovianDSS node-a

Switch 1

Storage Client Access,
bond0: 192.168.0.220 (iSCSI-MPIO)

Storage Client Access,
bond0: 192.168.2.220 (iSCSI-MPIO)

Ring, Ping Node
Bond (active backup)
bond2: 192.168.4.220

Remote Disks
Bond (round-robin)
bond3: 192.168.6.220

Remote disks mirroring paths for Cluster over Ethernet

NOTE:
Ring path (heartbeat) and Ping nodes must run on Active-Backup bonding. Ring and Ping IP must be configured in the same network subnet.

Client-2:
ESXi, XEN, Hyper-V

eth0: 192.168.21.102 (SMB, NFS or iSCSI)
eth1: 192.168.31.102 (SMB, NFS or iSCSI)
eth0 or eth1: 192.168.4.102 (Ping Node)

JovianDSS node-b

Switch 2

Storage Client Access,
bond0: 192.168.0.221 (iSCSI-MPIO)

Storage Client Access,
bond0: 192.168.2.221 (iSCSI-MPIO)

Ring, Ping Node
Bond (active backup)
bond0: 192.168.4.221

Remote Disks
Bond (round-robin)
bond3: 192.168.6.221

NOTE:
Ring path (heartbeat) and Ping nodes must run on Active-Backup bonding. Ring and Ping IP must be configured in the same network subnet.