

open-e

ENTERPRISE LEVEL STORAGE OS
for EVERY BUSINESS

*Step-by-Step Guide to
Synchronous
Volume Replication
(Block Based)
with Failover over a LAN
(with broadcast)
Supported by Open-E[®] DSS[™]*

DSS V6
DATA STORAGE SOFTWARE

16 TB



Easy to use, GUI based management provides performance and security.



Reliable disk based backup and recovery, along with Snapshot capability enable fast and reliable backup and restore.



Easy to implement remote Replication, at block or volume level, enables cost-effective disaster recovery.



IP based storage management combines NAS and iSCSI functionality for centralized storage and storage consolidation.

Software Version: DSS ver. 6.00 up50

Presentation updated: September 2010

www.open-e.com

Synchronous Volume Replication with Failover over a LAN *open-e*

	Replication Mode		Source/Destination			Data Transfer		Volume Type			
	Synchronous	Asynchronous	w/ System	LAN	WAN	File based	Block based	NAS	iSCSI		FC
									File-IO	Block-IO	
Synchronous Volume Replication with Failover over a LAN	✓			✓			✓			✓	

- **Open-E DSS Synchronous Volume Replication with Failover** is a fault tolerance process via iSCSI volume replication, that creates mirrored target data volumes.
 - Data is copied in real-time, and every change is immediately mirrored from the primary server to the secondary storage server.
 - In case of a failure, scheduled maintenance of the primary server, or loss of the primary data source, failover automatically switches operations to the secondary storage server, so processes can be continued as usual.

VOLUME REPLICATION WITH FAILOVER BETWEEN TWO SYSTEMS WITHIN ONE LAN

■ Recommended Resources

- Key Hardware (two systems)
 - ✓ x86 compatible
 - ✓ RAID Controller with **Battery Backup Unit**
 - ✓ HDD's
 - ✓ Network Interface Cards
 - ✓ Ping Node (ping node it is any permanently (24/7) available host in the network. In particular case the ping node function can be performed by the server storing the data on the iSCSI failover volume).
- Software
 - ✓ Open-E DSS V6, 2 units

■ Benefits

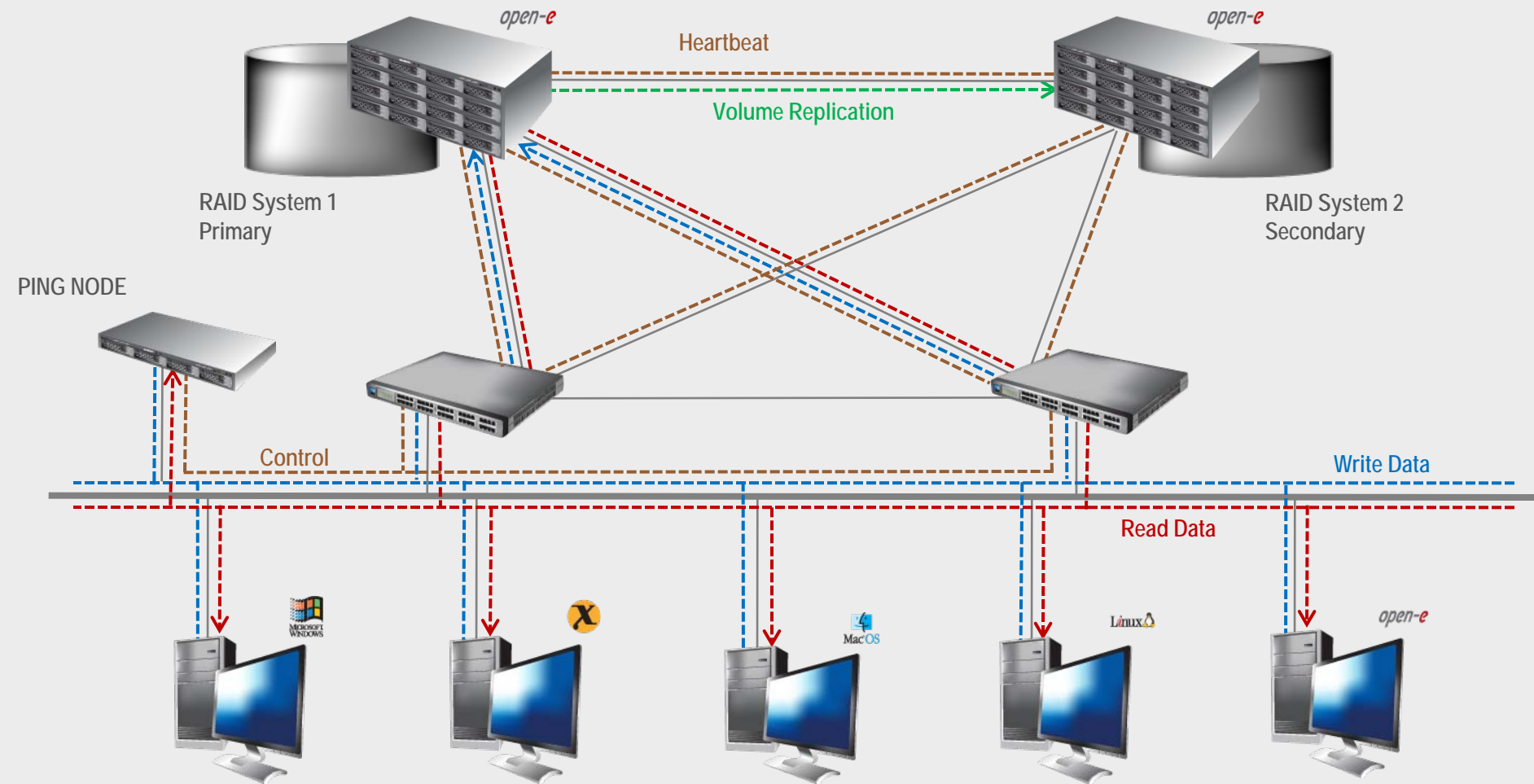
- Eliminate business disruption
- Data Redundancy over a LAN
- Switch Redundancy

■ Disadvantages

- High cost of solution
- Natural disasters (earthquake, fire, flood...) can destroy local systems

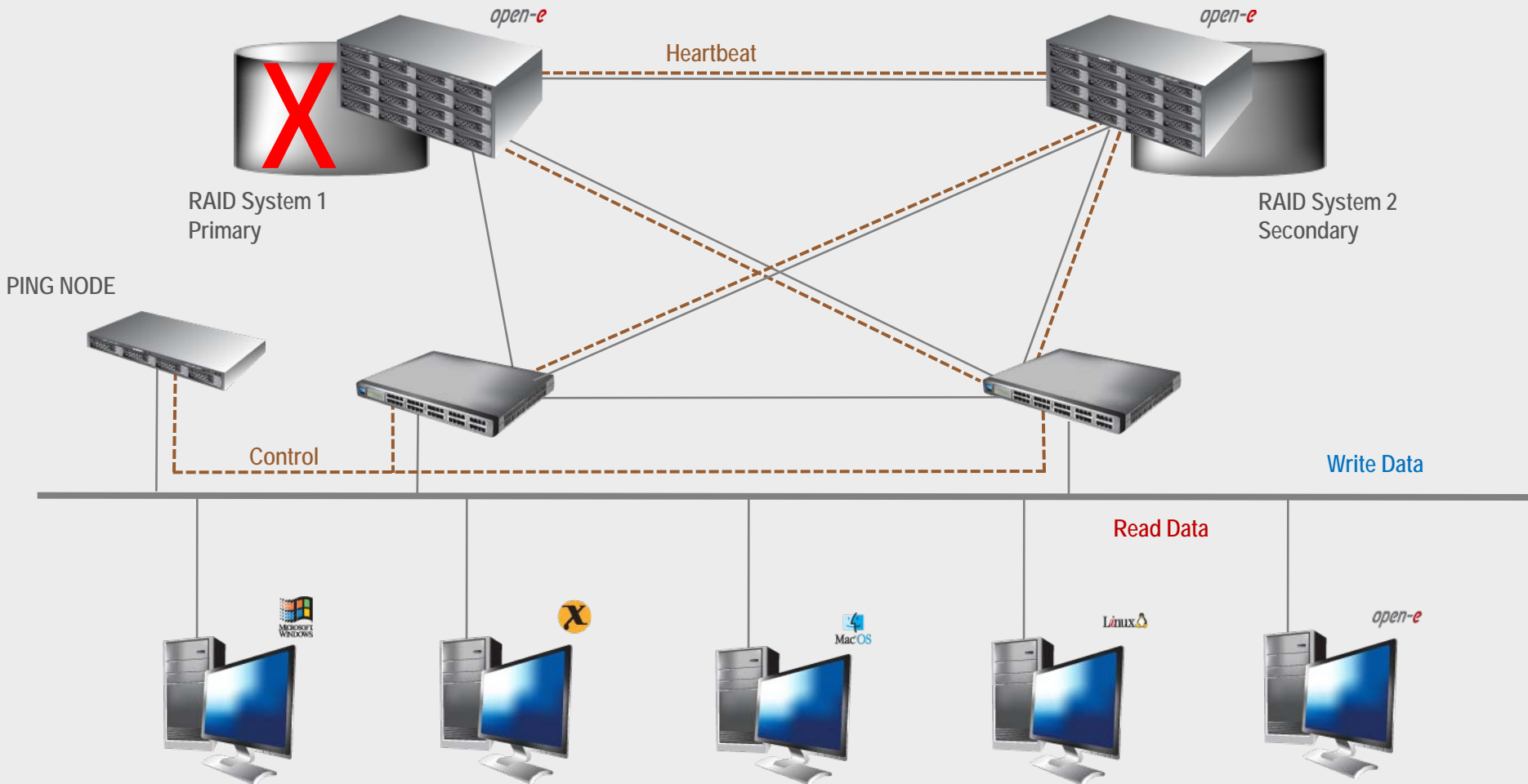
Synchronous Volume Replication with Failover over a LAN *open-e*

- Data is written and read to System 1 (primary)
- Data is continually replicated to System 2 (secondary)



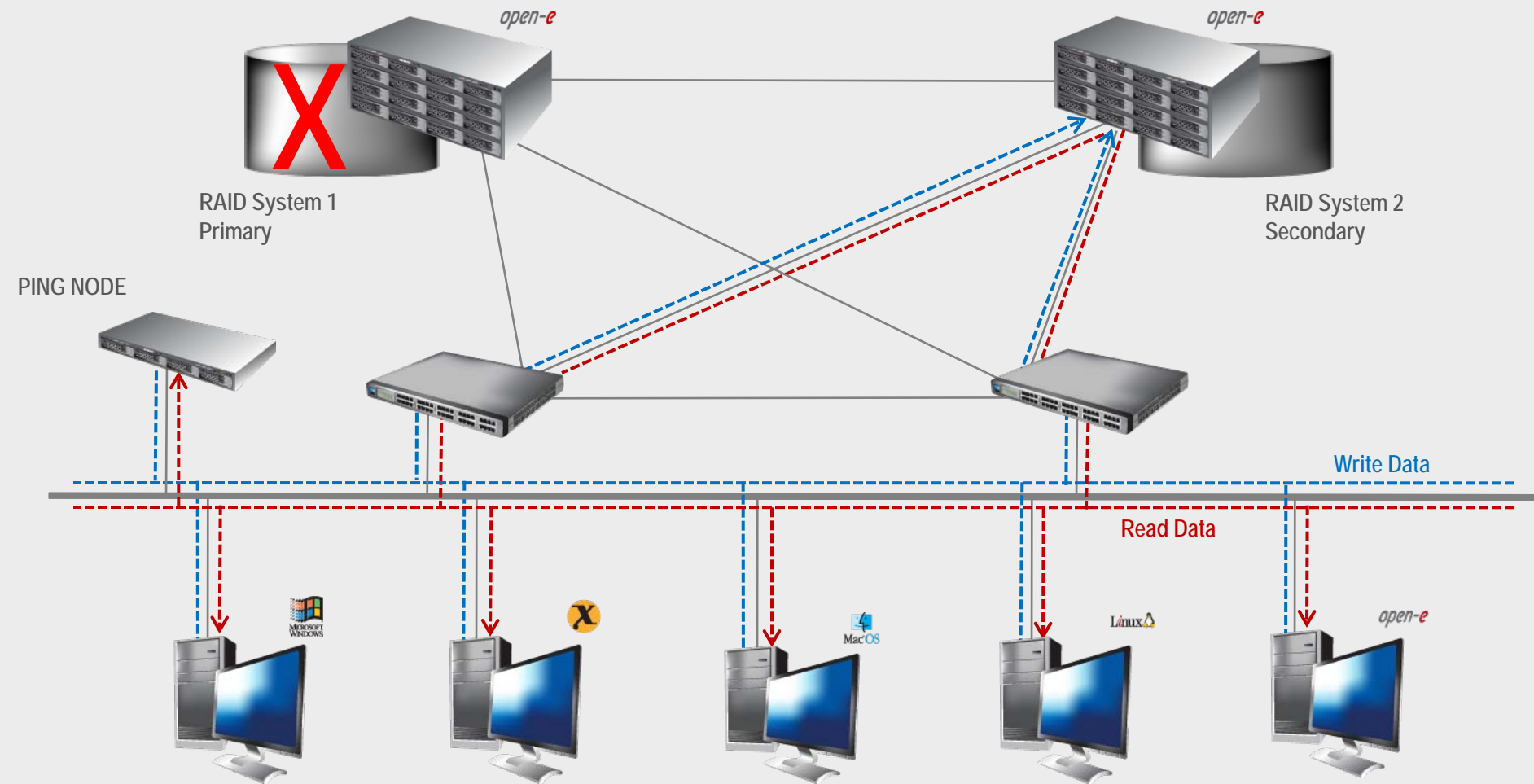
Synchronous Volume Replication with Failover over a LAN *open-e*

- In case system malfunction or power failure or lost network connection of the System1 (primary), the server will send an e-mail Notification to the administrator.
- After a few seconds Automatic Failover is executed and users are switched to System 2 (secondary).



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- After switching, the replicated volume is available on System 2 (secondary)



Synchronous Volume Replication with Failover over a LAN *open-e*

TO SET UP VOLUME REPLICATION WITH FAILOVER, PERFORM THE FOLLOWING STEPS:

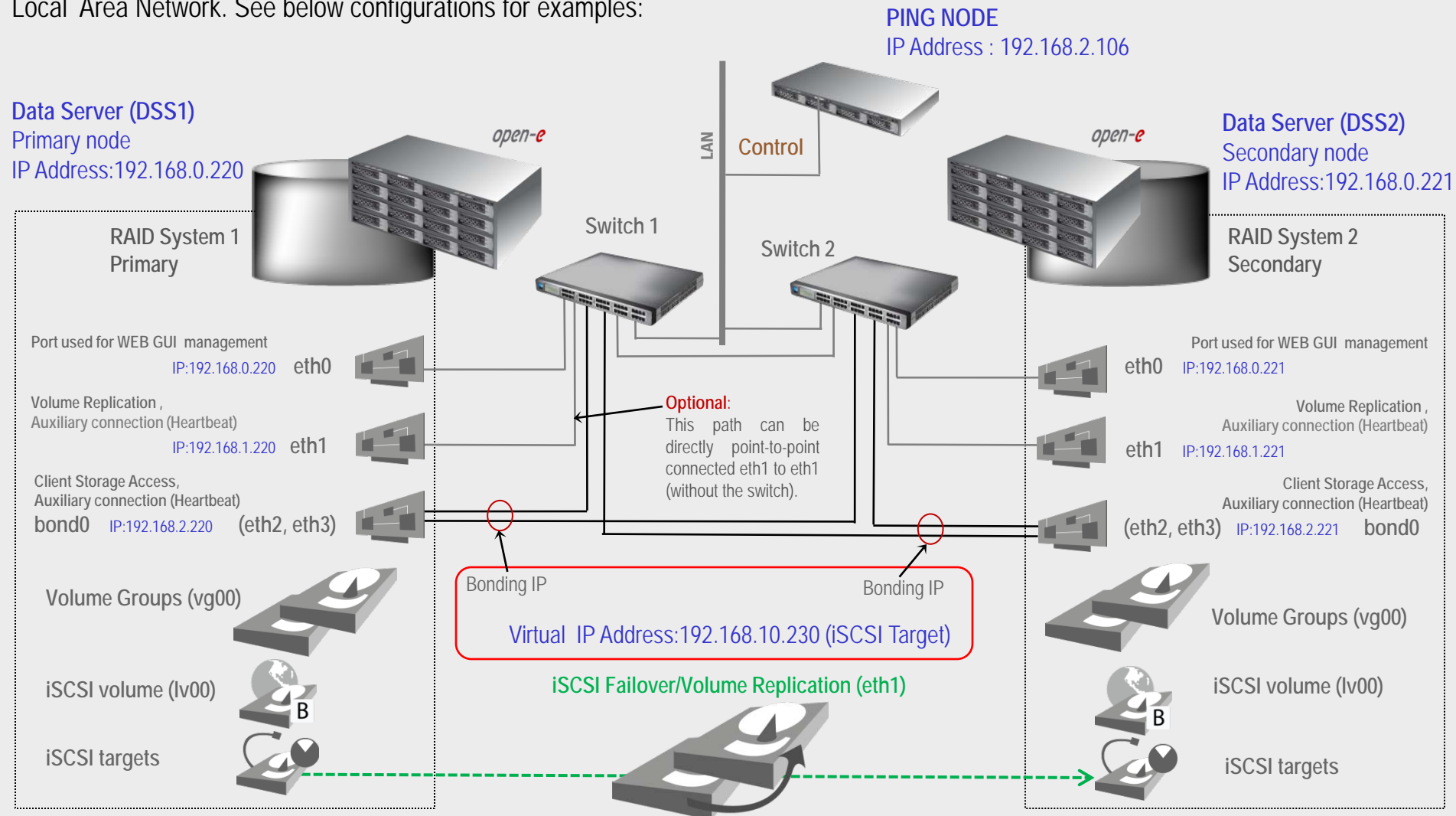
1. Hardware configuration:
 - Settings server names, ethernet ports and bonding on secondary and primary node
2. Configure the Secondary node:
 - Create a Volume Group, iSCSI Volume
 - Configure Volume Replication mode (destination mode) – settings mirror IP address
3. Configure the Primary node
 - Create a Volume Group, iSCSI Volume
 - Configure Volume Replication mode (source mode) – settings mirror IP address, creating Volume Replication task and start replication task.
4. Create new target on Secondary node
5. Create new target on Primary node
6. Configure iSCSI Failover (primary and secondary node)
7. Configure virtual IP and Auxiliary connection
8. Start Failover Service
9. Test Failover Function
10. Run Failback Function

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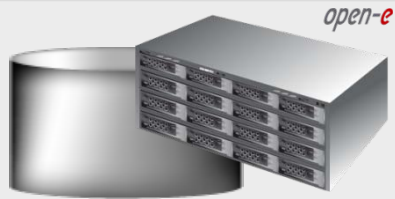
Hardware Requirements:

To run the Volume Replication with Failover, two DSS systems are required. Both servers must be located and working in the Local Area Network. See below configurations for examples:

1. Hardware Configuration



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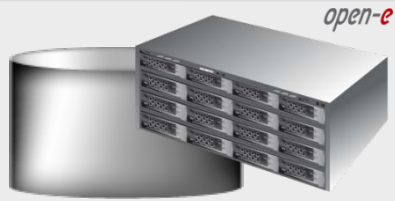
Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

1. Hardware Configuration

After logging on the DSS V6 please go to „**SETUP**“ tab, „**network**“ and „**Interfaces**“. In „**Server name**“ function enter Server name, in this example „**dss2**“ and click **apply** button. (All connections will be restarted)

The screenshot shows the open-e web interface for 'DATA STORAGE SOFTWARE V6'. The navigation tabs are SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The current page is 'Interfaces' under the 'network' section. The left sidebar shows a tree view with 'Interfaces' and 'iSCSI Failover' sections, each containing a list of network interfaces: eth0, eth1, eth2, and eth3. The main content area has three configuration panels: 'Server name', 'Hostname', and 'DNS settings'. The 'Server name' panel has a text input field containing 'dss2' and a comment field containing 'Data Storage Software'. The 'apply' button is highlighted with a red border. The 'Hostname' panel has an information icon and a warning message: 'Please do not change the hostname unless it is absolutely necessary, as changing the hostname can cause serious issues with several advanced functions (such as iSCSI failover). This function requires server restart.' The hostname input field contains 'dssA0000032'. The 'DNS settings' panel has an empty text input field for the DNS value. At the bottom of the interface, there is an 'Event Viewer' icon and a footer that reads 'Data Storage Software V6 - All rights reserved'.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

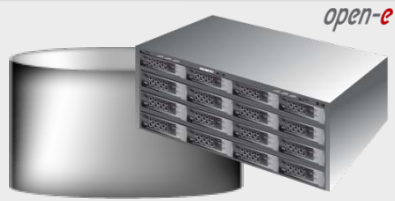
1. Hardware Configuration

Next select **eth0** interface and change IP Address from 192.168.0.220 in field IP address to 192.168.0.221, and click **apply** button. (This will restart network configuration).

The screenshot shows the open-e web interface for configuring network interfaces. The breadcrumb trail is "You are here: SETUP > network > Interfaces > eth0".

- Interfaces:** A list of interfaces (eth0, eth1, eth2, eth3) is shown on the left. The **eth0** interface is selected and highlighted.
- Interface info:** Shows "Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03)".
- IP address:** A warning message states "Warning! You are currently connected through this interface." Below this, the configuration is set to **Static**. The IP address field is set to "192.168.0.221", the Netmask is "255.255.255.0", and Broadcast is "auto".
- Buttons:** An "apply" button is located at the bottom right of the IP address configuration section.
- Footer:** "Please apply changes or press 'reload' button to discard" is displayed at the bottom of the configuration area.

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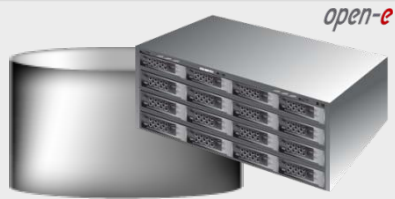
Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

1. Hardware Configuration

Next select **eth1** interface and change IP address from 192.168.1.220 in field IP address to 192.168.1.221 and click **apply** button.

The screenshot shows the open-e web interface for configuring the eth1 interface. The breadcrumb trail is: SETUP > network > Interfaces > eth1. The 'Interfaces' section on the left lists eth0, eth1 (selected), eth2, and eth3. The 'Interface info' section shows 'Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03)'. The 'IP address' section has the following settings: Active (checked), MAC: 00:04:23:B9:86:FB, DHCP (unchecked), Static (selected), IP address: 192.168.1.221, Netmask: 255.255.255.0, Broadcast: auto, and Gateway: (empty). An 'apply' button is at the bottom right of the IP address section. A footer note says 'Please apply changes or press "reload" button to discard'. The footer of the interface reads 'Data Storage Software V6 - All rights reserved'.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

1. Hardware Configuration

Again select „Interfaces” and in Create new bond interface function check two boxes with eth2 and eth3. In field Create select bonding mode. In this example select New balance-rr.

Next enter IP Address in field Address IP 192.168.2.221, Netmask, and click **create** button.

The screenshot shows the open-e web interface for configuring network interfaces. The main content area is titled "Create new bond interface" and contains a table of existing interfaces and a configuration form for a new bond interface.

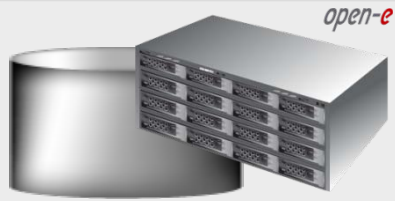
Primary	Interface	Active	Cable	State
<input type="checkbox"/>	eth0	yes	cable	Single
<input type="checkbox"/>	eth1	yes	cable	Single
<input checked="" type="checkbox"/>	eth2	yes	cable	Single
<input checked="" type="checkbox"/>	eth3	yes	cable	Single

Configuration form fields:

- Create:
- MAC:
- Radio buttons: DHCP, Static
- Address IP:
- Netmask:
- Broadcast:
- Gateway:
- Buttons:

Below the form is an "HTTP proxy" section with a checkbox for "Use HTTP proxy" and an "apply" button.

Synchronous Volume Replication with Failover over a LAN *open-e*



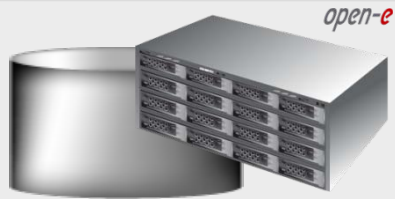
Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

1. Hardware Configuration

After reloading page on the dss2 server you have configured **bond0**. Setting of the network interfaces on the secondary node is finished.

The screenshot displays the open-e web management interface for a secondary node. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Interfaces' under the 'network' section. On the left, there are two expandable sections: 'Interfaces' and 'iSCSI Failover'. The 'Interfaces' section is expanded, showing a list of network interfaces: eth0, eth1, eth2 (bond0), eth3 (bond0), and bond0. The 'iSCSI Failover' section is also expanded, showing eth0, eth1, and bond0. On the right, there are three configuration panels: 'Server name' (with fields for 'Server name' containing 'dss2' and 'Comment' containing 'Data Storage Software'), 'Hostname' (with an 'Info' box and a field for 'Hostname' containing 'dssA0000032'), and 'DNS settings' (with a field for 'DNS'). Each panel has an 'apply' button. The footer of the interface shows 'Event Viewer' and 'Data Storage Software V6 - All rights reserved'.

Synchronous Volume Replication with Failover over a LAN *open-e*

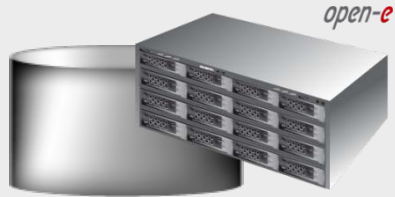


Data Server (DSS1)
Primary node
IP Address:192.168.0.220

1. Hardware Configuration

After logging on the primary node please go to „**SETUP**“ tab, „**network**“ and „**Interfaces**“. In „**Server name**“ function enter Server name. In this example enter **dss1** and click **apply** button. (All connection will be restarted).

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address:192.168.0.220

1. Hardware Configuration

Again select „Interfaces” and in Create new bond interface function check two boxes with eth2 and eth3. In field Create select mode for bonding. In this example selected New balance-rr..

Next enter IP Address in field Address IP 192.168 .2.220, Netmask, and click **create** button.

✓	Primary	Interface	Active	Cable	State
<input type="checkbox"/>	<input type="checkbox"/>	eth0	yes	cable	Single
<input type="checkbox"/>	<input type="checkbox"/>	eth1	yes	cable	Single
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth2	yes	cable	Single
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth3	yes	cable	Single

Create:

MAC:

DHCP

Static

Address IP:

Netmask:

Broadcast:

Gateway:

create

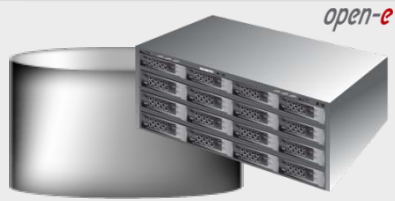
Please apply changes or press "reload" button to discard

HTTP proxy

Use HTTP proxy

apply

Synchronous Volume Replication with Failover over a LAN *open-e*



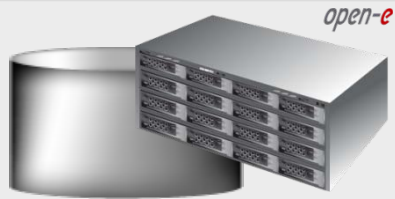
Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

1. Hardware Configuration

After reloading page on the dss1 server you have configured **bond0**. Setting of the network interfaces on the secondary node is finished.

The screenshot displays the open-e web management interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Interfaces' under the 'network' section. On the left, there are two panels: 'Interfaces' and 'iSCSI Failover'. The 'Interfaces' panel shows a list of network interfaces: eth0, eth1, eth2 (bond0), eth3 (bond0), and bond0. The 'iSCSI Failover' panel shows eth0, eth1, and bond0. The main content area on the right contains configuration forms for 'Server name', 'Hostname', and 'DNS settings'. The 'Server name' form has 'dss1' in the input field and 'Data Storage Software' in the comment field. The 'Hostname' form has 'dssA0000031' in the input field. The 'DNS settings' form has an empty input field. Each form has an 'apply' button. At the bottom, there is an 'Event Viewer' icon and the text 'Data Storage Software V6 - All rights reserved'.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

2. Configure the Secondary node

Under the „CONFIGURATION” tab, select „volume manager” and next Vol. Groups.



In Unit manager function add the selected physical units (Unit S000 or other) to create a new volume group (in this case, vg00) and click **apply** button

The screenshot shows the open-e web interface with the following elements:

- Header: **open-e** | ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS | DATA STORAGE SOFTWARE V6
- Navigation tabs: SETUP, CONFIGURATION, MAINTENANCE, STATUS, HELP
- Breadcrumb: You are here: CONFIGURATION > volume manager > Vol. groups
- Left sidebar: Vol. groups (selected), Vol. replication
- Main content area:
 - Unit rescan**: rescan button
 - Unit manager**:

Unit	Size (GB)	Serial number	Status
<input checked="" type="checkbox"/> Unit S000	230.08	N/A	available

Action: new volume group (dropdown)
Name: vg00

apply button

Please apply changes or press "reload" button to discard
 - Drive identifier**:

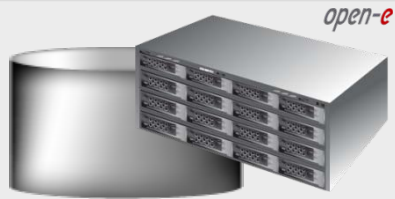
Unit	Serial number	Status
<input type="checkbox"/> Unit S000	N/A	

apply button

Event Viewer: [icon]

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Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

2. Configure the Secondary node

Select the appropriate volume group (**vg00**) from the list on the left and create a **new iSCSI volume** of the required size. This logical volume will be the destination of the replication process.

Next check the box with **Use volume replication**

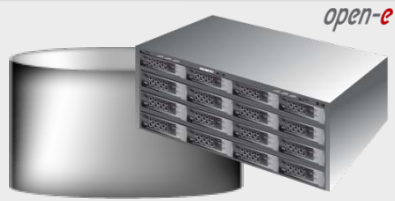
After assigning an appropriate amount of space for the iSCSI volume, click the **apply** button

The screenshot shows the open-e web interface for configuring a new iSCSI volume. The breadcrumb trail is: CONFIGURATION > volume manager > Vol. groups > vg00. The 'Vol. groups' tab is active, showing 'vg00' selected. The 'Vol. replication' tab is also visible. The 'Volume manager' section shows a table of system volumes:

System volumes	Size (GB)
Reserved Pool	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.00
Free	222.03

The 'Action' dropdown is set to 'new iSCSI volume' and the 'Options' dropdown is set to 'Just create volume'. The 'Use volume replication' checkbox is checked. Under 'File I/O', the 'Initialize' checkbox is checked and the 'Rate' is set to 'medium'. Under 'Block I/O', a slider is shown with '0' on the left and '222.03' on the right. The 'add:' field is set to '10' GB, with a note '(+0.12 GB for replication)'. The 'apply' button is highlighted in red. At the bottom, there is a message: 'Please apply changes or press "reload" button to discard'. The footer of the interface reads 'Data Storage Software V6 - All rights reserved'.

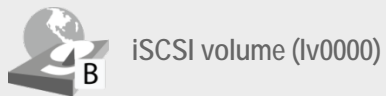
Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

2. Configure the Secondary node

The destination iSCSI Volume Block I/O is now configured.



The screenshot shows the open-e web interface for configuring a logical volume. The breadcrumb trail is: CONFIGURATION > volume manager > Vol. groups > vg00. The 'Volume manager' section displays a success message: 'Logical volume lv0000 has been created successfully.' Below this is a table of logical volumes:

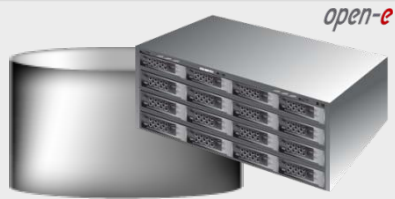
Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0000	B2		✓		N/A	10.00

Below the table, the 'System volumes' section shows the following sizes (in GB):

- Reserved Pool: 4.00
- Reserved for snapshots: 0.00
- Reserved for system: 4.00
- Reserved for replication: 0.13
- Free: 211.91

The 'Action:' dropdown is set to 'new NAS volume'. There are checkboxes for 'Use volume replication' and 'WORM', both of which are unchecked. At the bottom, there is a slider for volume size, currently set to 0.00 GB, with an 'add:' button and a text input field.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

2. Configure the Secondary node

Now, select the Vol. replication and check the box under **Destination** and click the **apply** button

Next, under **Mirror Server IP** function, enter the IP address of the Primary node (in our example, this would be 192.168.1.220) and click the **apply** button

The screenshot shows the open-e web interface for configuring volume replication. The breadcrumb trail is: CONFIGURATION > volume manager > Vol. replication. The 'Vol. groups' section shows 'vg00'. The 'Volume replication mode' table is as follows:

Logical Volume	Init	Source	Destination	Clear metadata
lv0000	done	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

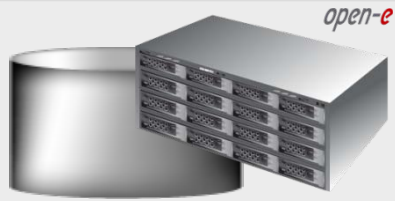
Below the table is an 'apply' button. The 'Mirror server IP' section has the IP address '192.168.1.220' entered in the 'IP address:' field, with a 'WAN' checkbox below it. An 'apply' button is also present. A message box states: 'Info: Mirror Server IP is not set.' The 'Replication tasks manager' section is partially visible at the bottom.

NOTE:

The Mirror server IP Address must be on the same subnet in order for the replication to communicate. VPN connections can work providing you are not using a NAT. Please follow example:

- Source: 192.168.1.220
- Destination: 192.168.1.221

Synchronous Volume Replication with Failover over a LAN *open-e*

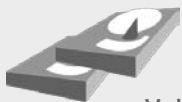


Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

3. Configure the Primary node

Under the „CONFIGURATION“ tab, select „volume manager“ and next „Vol. Groups“

Add the selected physical units (Unit MD0 or other) to create a new volume group (in this case, vg00) and click **apply** button



Volume Groups (vg00)

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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: CONFIGURATION > volume manager > Vol. groups

Vol. groups

Unit rescan

rescan

Unit manager

Unit	Size (GB)	Serial number	Status
<input checked="" type="checkbox"/> Unit MD0	465.77	N/A	available

Action: new volume group
Name: vg00

apply

Please apply changes or press "reload" button to discard

Vol. replication

Drive identifier

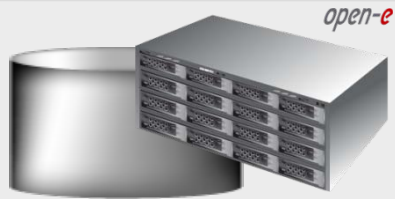
Unit	Serial number	Status
<input type="checkbox"/> Unit S001	5RY13SBZ	
<input type="checkbox"/> Unit S000	9RY1GP7W	

apply

Event Viewer: [envelope icon]

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Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

3. Configure the Primary node

Select the appropriate volume group (**vg00**) from the list on the left and create a **new iSCSI volume** of the required size. This logical volume will be the source of the replication process.

Next, check box **Use volume replication**

After assigning an appropriate amount of space for the iSCSI volume, click the **apply** button

NOTE:

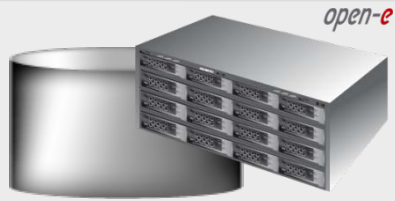
The source and destination volumes must be of identical size.

The screenshot shows the open-e web interface for configuring a new iSCSI volume. The interface includes a navigation menu with 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'CONFIGURATION > volume manager > Vol. groups > vg00'. The 'Volume manager' section displays a table of system volumes:

System volumes	Size (GB)
Reserved Pool	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.00
Free	457.72

Below the table, the 'Action:' dropdown is set to 'new iSCSI volume' and the 'Options:' dropdown is set to 'Just create volume'. The 'Use volume replication' checkbox is checked. Under 'File I/O', the 'Initialize' checkbox is checked and the 'Rate' is set to 'medium'. Under 'Block I/O', a slider is shown with a value of 10 GB. The 'add:' button is highlighted in red. At the bottom, there is a footer with 'Event Viewer: [icon]' and 'Data Storage Software V6 - All rights reserved'.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

3. Configure the Primary node

The source iSCSI Volume Block I/O is now configured.



The screenshot shows the open-e management interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: CONFIGURATION > volume manager > Vol. groups > vg00'. The main content area is divided into two panes. The left pane shows 'Vol. groups' with 'vg00' selected. The right pane, titled 'Volume manager', displays an information message: 'Logical volume lv0000 has been created successfully.' Below this is a table of logical volumes:

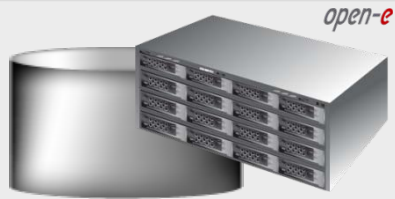
Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0000	B2		✓		N/A	10.00

Below the table, the 'System volumes' section shows the following sizes (in GB):

- Reserved Pool: 4.00
- Reserved for snapshots: 0.00
- Reserved for system: 4.00
- Reserved for replication: 0.13
- Free: 447.59

The 'Action:' dropdown menu is set to 'new NAS volume'. There are checkboxes for 'Use volume replication' and 'WORM', both of which are unchecked. At the bottom, there is a slider and a text input field for 'add:' with a value of '0.00' and a unit of 'GB'. An 'apply' button is located at the bottom right of the configuration area.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address:192.168.0.220

3. Configure the Primary node

Now, select Vol. replication, and check the box under **Source** and click the **apply** button

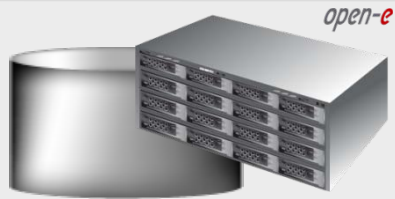
Next , under **Mirror Server IP** function, enter the IP address of the Secondary node (in our example this would be 192.168.1.221) and click the **apply** button

The screenshot shows the open-e web interface for configuring volume replication. The breadcrumb trail is: CONFIGURATION > volume manager > Vol. replication. The 'Vol. groups' section shows a group named 'vg00'. The 'Vol. replication' section is active, showing a table for 'Volume replication mode'.

Logical Volume	Init	Source	Destination	Clear metadata
lv0000	done	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


Below the table is an 'apply' button. The 'Mirror server IP' section has an 'IP address:' field containing '192.168.1.221' and a 'WAN' checkbox which is unchecked. There is also an 'apply' button here. A message at the bottom of this section says 'Please apply changes or press "reload" button to discard'. The 'Create new volume replication task' section shows an 'Info' message: 'Mirror Server IP is not set.'. The 'Replication tasks manager' section also shows an 'Info' message.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address:192.168.0.220

3. Configure the Primary node

Enter the task name in field
Task name next click on the
button 

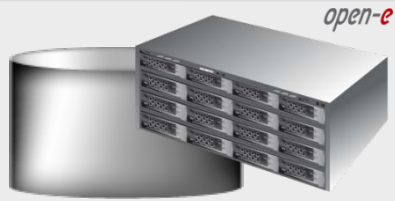
In the **Destination volume**
field select the appropriate
volume (in this example,
lv0000) and click **create** to
confirm

The screenshot shows the open-e web interface for configuring volume replication. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: CONFIGURATION > volume manager > Vol. replication'. The main content area is divided into several panels:

- Vol. groups:** A tree view showing a group named 'vg00'.
- Mirror server IP:** A form with 'IP address:' set to '192.168.1.221' and a 'WAN' checkbox. An 'apply' button is at the bottom.
- Create new volume replication task:** A form with the following fields:
 - 'Task name:' set to 'MirrorTask'
 - 'Source volume:' set to 'lv0000'
 - 'Destination volume:' set to 'lv0000' (with a dropdown arrow icon)
 - 'Bandwidth for SyncSource (MB):' set to '40'
 - 'Asynchronous protocol:' checkbox is unchecked.An 'create' button is at the bottom. A note below the form reads: 'Please apply changes or press "reload" button to discard'.
- Replication tasks manager:** A panel with an 'Info' icon and the text 'No tasks have been found.'


At the bottom of the interface, there is an 'Event Viewer' icon and a footer that reads 'Data Storage Software V6 - All rights reserved'.

Synchronous Volume Replication with Failover over a LAN *open-e*






Data Server (DSS1)
Primary node
IP Address:192.168.0.220

3. Configure the Primary node

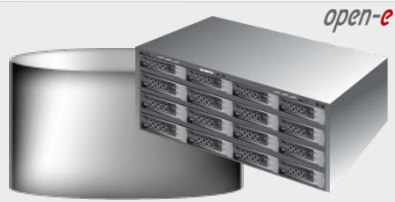
Now, in the **Replication task manager** function, click on  button under to start the Replication task on the Primary node

The screenshot shows the open-e web interface for configuring a primary node. The breadcrumb trail is: You are here: CONFIGURATION > volume manager > Vol. replication. The left sidebar shows a tree view with 'Vol. groups' containing 'vg00' and 'Vol. replication' containing 'MirrorTask'. The main content area has several sections: 1. An 'apply' button. 2. 'Mirror server IP' section with 'IP address:' set to '192.168.1.221' and a 'WAN' checkbox. 3. 'Create new volume replication task' section with an info message: 'No volumes with replication functionality found or all volumes have a task assigned already.' 4. 'Replication tasks manager' section with a table:

Name	Start time	Action
MirrorTask	n/a	  

At the bottom, there is an 'Event Viewer' icon and a footer: 'Data Storage Software V6 - All rights reserved'.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address:192.168.0.220

3. Configure the Primary node

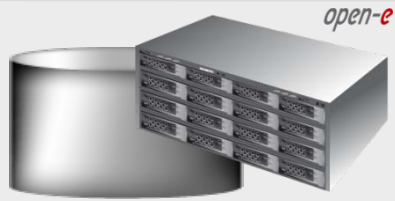
In the Replication tasks manager function information is available about the current running replication task.

The screenshot shows the open-e web interface with the following components:

- Navigation:** SETUP, CONFIGURATION, MAINTENANCE, STATUS, HELP. Breadcrumbs: You are here: CONFIGURATION > volume manager > Vol. replication.
- Vol. groups:** A tree view showing 'vg00'.
- Vol. replication:** A tree view showing 'MirrorTask'.
- Mirror server IP:** A configuration panel with 'IP address:' set to '192.168.1.221' and a checkbox for 'WAN'. An 'apply' button is at the bottom.
- Create new volume replication task:** An info message: 'No volumes with replication functionality found or all volumes have a task assigned already.'
- Replication tasks manager:** A table showing the current task.

Name	Start time	Action
MirrorTask	2010-09-06 21:59:57	[Status icons]
Source volume:	lv0000	
Destination volume:	lv0000	
Destination IP:	192.168.1.221	
Protocol type:	Synchronous	


Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address:192.168.0.220

3. Configure the Primary node

Under the „STATUS“ tab,
select „tasks“ and Volume
Replication

Click on the  button with
task name (in this case
MirrorTask) to display detailed
information on the current
replication task

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SETUP CONFIGURATION MAINTENANCE STATUS HELP

You are here: STATUS > tasks > Volume Replication

Tasks

- Backup
- Restore from backup
- Data Replication
- Antivirus
- Volume Replication**
- Snapshots

Running tasks

Name	Type	Start time
MirrorTask	Volume replication	2010-09-06 21:59:57


Protocol type: Synchronous
Connection: Connected

Source info:
Logical volume: lv0000
Consistency: Consistent

Destination info:
Logical volume: lv0000
Consistency: Consistent
IP address: 192.168.1.221

Tasks log

Time	Name	Type	Status	Action
2010-09-06 22:00:09	MirrorTask	Volume replication	OK	Started

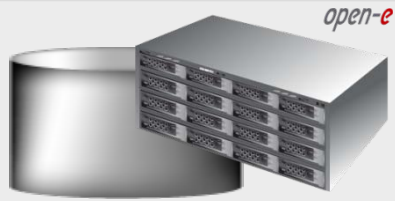
Event Viewer: 

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NOTE:

Please allow the replication task to complete similar to above with status being "Consistent" before writing to the iSCSI Logical Volume.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

4. Create new target on the Secondary node

Choose „CONFIGURATION“, „iSCSI target manager“ and „Targets“ from the menu

In the Create new target function, uncheck the box Target Default Name, and enter a name for the new target in the Name field and click **apply** to confirm.

The screenshot shows the open-e web interface for configuring iSCSI targets. The navigation menu includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: CONFIGURATION > iSCSI target manager > Targets'. The main content area is divided into two panels. The top panel, titled 'Create new target', contains a checkbox for 'Target Default Name' which is unchecked. Below it are input fields for 'Name:' (containing 'mytarget') and 'Alias:' (containing 'target0'). A red 'apply' button is at the bottom right of this panel. The bottom panel, titled 'Discovery CHAP user access', contains a checkbox for 'Enable CHAP user access authentication' which is also unchecked, with another red 'apply' button below it. At the bottom of the interface, there is an 'Event Viewer' icon and a footer that reads 'Data Storage Software V6 - All rights reserved'.

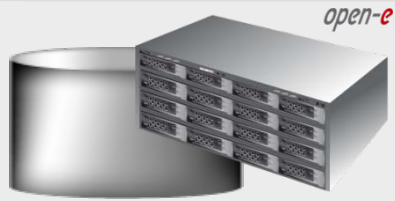
iSCSI targets



NOTE:

Both systems must have the same Target name.

Synchronous Volume Replication with Failover over a LAN *open-e*





Data Server (DSS2)
Secondary node
IP Address:192.168.0.221

4. Create new target on the Secondary node

Select target0 within the Targets field.

To assign a volume to the target, click the button located under Action

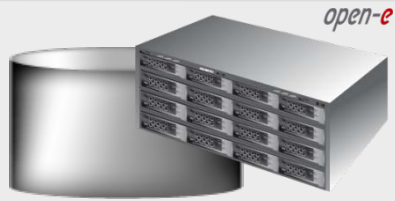
The screenshot shows the open-e web interface for configuring an iSCSI target. The breadcrumb path is 'CONFIGURATION > iSCSI target manager > Targets > mytarget (target0)'. The 'Targets' field contains 'target0'. The 'Target volume manager' section shows a table with the following data:

Volume	SCSI ID	LUN	RO	WB	Action
lv0000	mBtTT9oRWFiMaJPw	0	<input type="checkbox"/>	<input type="checkbox"/>	 

The 'Action' column for the first row is highlighted with a blue arrow. Below the table, there is a 'Discovery CHAP user access' section with a checkbox for 'Enable CHAP user access authentication' and an 'apply' button.

WARNING:
Please do not switch on the write back (WB) cache !

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

5. Create new target on the Primary node

Choose „CONFIGURATION“ and „iSCSI target manager“ and „Targets“ from the menu

In the Create new target function, uncheck the box Target Default Name, and enter a name for the new target in the Name field and click **apply** to confirm

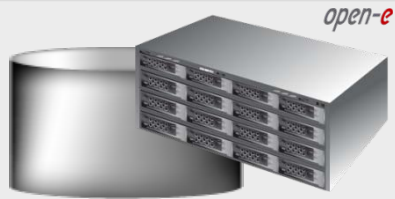
iSCSI targets



NOTE:

Both systems must have the same Target name.


Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

5. Create new target on the Primary node

Select the target0 within the Targets field

To assign a volume to the target, click the button  located under **Action**

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SETUP CONFIGURATION MAINTENANCE STATUS HELP

You are here: CONFIGURATION > iSCSI target manager > Targets > mytarget (target0)

Targets

target0


Target volume manager

Info

Currently there are no LUN's added to this target. In order to add a LUN, click on the plus "+" sign in the "Action" column for this LUN.

Info

Please note that in order to access iSCSI-enabled data from an initiator, the target needs to have a LUN 0, otherwise the data in all other LUNs will be inaccessible. The data will also be inaccessible if you select an inactive snapshot or a destination volume (volume replication) as LUN 0.

Volume	SCSI ID	LUN	RO	WB	Action
lv0000	mBtTT9oRWFiMaJPw	0	<input type="checkbox"/>	<input type="checkbox"/>	

Please apply changes or press "reload" button to discard

Discovery CHAP user access


Enable CHAP user access authentication

apply

Target IP access

Deny access:

Allow access:

Event Viewer: 

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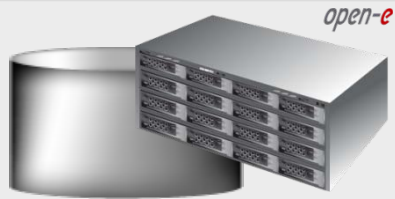
NOTE:

Both systems must have the same SCSI ID and LUN#

WARNING:

Please do not switch on the write back cache (WB) !

Synchronous Volume Replication with Failover over a LAN *open-e*



open-e
Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

6. Configure iSCSI Failover

Now, choose the „**SETUP**“ tab, next „**network**“ and select **iSCSI Failover**

In the Failover configuration function, check the box **Enable iSCSI failover functionality**. Select **Network connection mode** (in this example **Broadcast**). Next enter the **Secondary node IP** and the **Ping Node IP** (must be on the same subnet) and click the **apply** button.

Interfaces

- eth0
- eth1
- eth2 (bond0)
- eth3 (bond0)
- bond0

iSCSI Failover

- eth0
- eth1
- bond0

Failover status

Info

Failover statistics are unavailable due to the iSCSI Failover service being disabled. Please go to Failover Configuration to enable it.

Failover configuration

Enable iSCSI failover functionality

Network connection mode:

Network interface for unicast:

Primary node on localhost

Secondary node IP:

Ping node IP(s):

Show advanced >>

Secondary node on localhost

Primary node IP:

Show advanced >>

apply

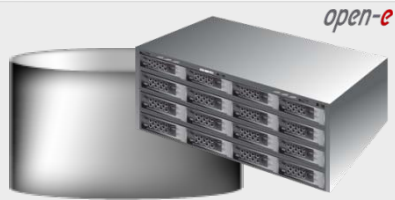
Please apply changes or press "reload" button to discard

Failover Tasks

Event Viewer:

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Synchronous Volume Replication with Failover over a LAN *open-e*



open-e
Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

6. Configure iSCSI Failover

In this node, choose the „**SETUP**“ tab, next „**network**“ and select **iSCSI Failover**.

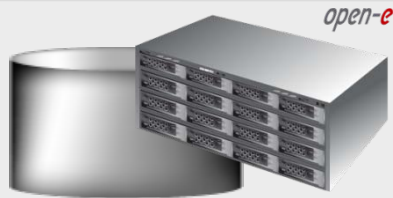
Now, in **Failover configuration** function, check the box **Enable iSCSI failover functionality**. Select **Network connection mode** (in this example **Broadcast**). After choose **Secondary node on localhost** enter **Primary node IP** address and click the **apply** button.

The screenshot displays the open-e web interface for configuring iSCSI failover. The breadcrumb trail indicates the path: SETUP > network > iSCSI Failover. The 'Interfaces' section lists available network interfaces. The 'Failover configuration' section is active, showing the following settings:

- Enable iSCSI failover functionality
- Network connection mode: Broadcast
- Network interface for unicast: select interface
- Primary node on localhost
- Secondary node on localhost
- Primary node IP: 192.168.2.220

An 'apply' button is located at the bottom right of the configuration section. A footer note states: 'Please apply changes or press "reload" button to discard'. The footer of the page reads 'Data Storage Software V6 - All rights reserved'.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

7. Configure Virtual IP and Auxiliary connection

Next, select the **bond0** within **iSCSI Failover**. In the **Virtual IP Settings** function check box **Enable virtual IP** and enter IP address, Netmask, Broadcast, and click the **apply** button.

By setting the address of the secondary node in a **Failover configuration**, automatic detection of the interface for communication.

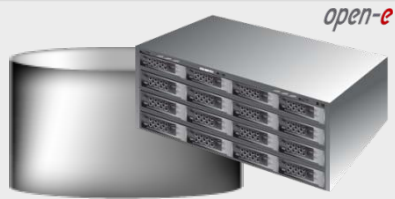
The screenshot shows the open-e web interface with the following configuration steps:

- Navigation:** SETUP > network > iSCSI Failover
- Interfaces:** eth0, eth1, eth2 (bond0), eth3 (bond0), bond0
- iSCSI Failover:** eth0, eth1, bond0
- Virtual IP Settings:**
 - MAC: 02:c3:34:af:26:c2
 - Enable virtual IP
 - IP address: 192.168.10.230
 - Netmask: 255.255.255.0
 - Broadcast: 192.168.10.255
 - apply**
- Auxiliary connection:**
 - Use this network interface to communicate between the nodes.
 - Unicast remote IP: [empty field]
 - apply**

NOTE:

There need to be at least two *auxiliary connections*. The interface with the virtual IP can also serve as one of the auxiliary connections. Please set the Virtual IP Address in a different network subnet than the physical IP Address. To have additional iSCSI Failover systems, please set this pair in a different network subnet from the other iSCSI Failover systems. This limitation will be removed in the future.

Synchronous Volume Replication with Failover over a LAN *open-e*



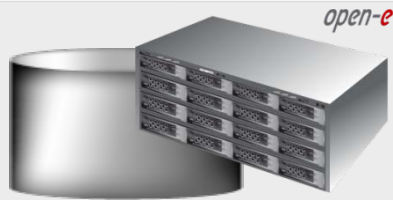
Data Server (DSS1)
Primary node
IP Address:192.168.0.220

7. Configure Virtual IP and Auxillary connection

Now, select the eth1 within iSCSI Failover.
In the Auxillary connection function check box Use this network interface to communicate between the nodes and click the **apply** button.

The screenshot shows the open-e web interface for configuring iSCSI Failover. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates 'You are here: SETUP > network > iSCSI Failover'. The main content area is divided into two panels. The left panel, titled 'Interfaces', shows a list of network interfaces: eth0, eth1, eth2 (bond0), eth3 (bond0), and bond0. Below this, the 'iSCSI Failover' section is active, showing a list of interfaces where eth1 is selected with a red dot. The right panel, titled 'Virtual IP Settings', contains an 'Info' section with a note about subnetworks, a 'MAC' field with the value '00:15:17:18:e7:f5', and an unchecked 'Enable virtual IP' checkbox. Below this is the 'Auxillary connection' section, which has a checked checkbox for 'Use this network interface to communicate between the nodes.' and a 'Unicast remote IP:' field. Both the 'Virtual IP Settings' and 'Auxillary connection' sections have an 'apply' button. At the bottom of the interface, there is an 'Event Viewer' icon and a footer that reads 'Data Storage Software V6 - All rights reserved'.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

7. Configure Virtual IP and Auxiliary connection

Choose, „**SETUP**“ and „**network**“ and „**Interfaces**“ from the menu

Now, select the **bond0** within **iSCSI Failover**. In the **Virtual IP Settings** function check the box **Enable virtual IP** and enter **IP address**, **Netmask**, **Broadcast**, and click the **apply** button.

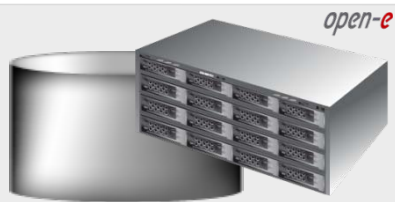
By setting the address of the primary node in a **Failover configuration**, automatic detection of the interface for communication.

The screenshot shows the open-e web interface with the following configuration steps visible:

- Navigation:** The breadcrumb trail is "You are here: SETUP > network > iSCSI Failover".
- Interfaces:** A list of network interfaces is shown: eth0, eth1, eth2 (bond0), eth3 (bond0), and bond0. The bond0 interface is selected.
- iSCSI Failover:** A sub-panel shows the selected interfaces: eth0, eth1, and bond0. The bond0 interface is highlighted.
- Virtual IP Settings:** This panel contains an "Info" section and configuration fields:
 - MAC: 02:13:c9:e4:a6:1e
 - Enable virtual IP
 - IP address: 192.168.10.230
 - Netmask: 255.255.255.0
 - Broadcast: 192.168.10.255
 - An "apply" button is present at the bottom right.
- Auxiliary connection:** This panel contains:
 - Use this network interface to communicate between the nodes.
 - Unicast remote IP: [empty field]
 - An "apply" button is present at the bottom right.

At the bottom of the interface, there is an "Event Viewer" icon and a footer that reads "Data Storage Software V6 - All rights reserved".

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

7. Configure Virtual IP and Auxiliary connection

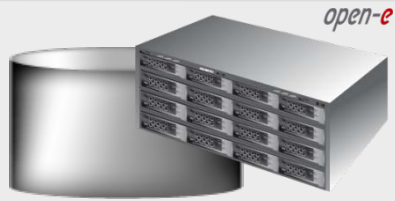
Now, select the eth1 within iSCSI Failover. In the Auxiliary connection function check box Use this network interface to communicate between the nodes and click the **apply** button.

The screenshot shows the open-e web interface for configuring iSCSI Failover. The breadcrumb trail is "You are here: SETUP > network > iSCSI Failover".

- Interfaces:** A list of network interfaces: eth0, eth1, eth2 (bond0), eth3 (bond0), and bond0. eth1 is selected.
- iSCSI Failover:** A sub-section where eth0, eth1, and bond0 are listed. eth1 is selected.
- Virtual IP Settings:** Contains an info box stating "Virtual IP must be set in different subnetwork than physical IP on this machine and must be in different subnetwork than Virtual IP sets on other machines in the same network area configured also as failover." Below this, the MAC address is 00:04:23:b9:86:fb, and the "Enable virtual IP" checkbox is unchecked. An "apply" button is present.
- Auxiliary connection:** Contains a checked checkbox "Use this network interface to communicate between the nodes." Below it is a text input field for "Unicast remote IP:" and an "apply" button. A note at the bottom says "Please apply changes or press 'reload' button to discard".

At the bottom of the interface, there is an "Event Viewer" icon and the text "Data Storage Software V6 - All rights reserved".

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address:192.168.0.220

7. Start Failover Service

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SETUP CONFIGURATION MAINTENANCE STATUS HELP

You are here: SETUP > network > iSCSI Failover

Interfaces

- eth0
- eth1
- eth2 (bond0)
- eth3 (bond0)
- bond0

iSCSI Failover

- eth0
- eth1
- bond0

Failover Tasks

Info
Please note asynchronous replication tasks will not be displayed in this window, as only synchronous tasks can be used for failover.

iSCSI Tasks | **Failover Tasks**

Search: | Search:

MirrorTask

apply

Please apply changes or press "reload" button to discard

Failover manager

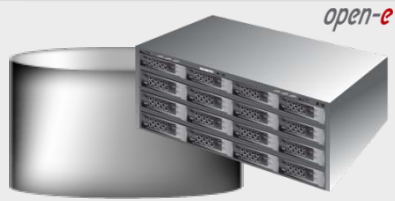
Info
No task has been selected.

Event Viewer:

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Next, select the iSCSI Failover. Move the iSCSI Tasks to be used for the failover service to the Failover Tasks area by clicking button and click **apply**

Synchronous Volume Replication with Failover over a LAN *open-e*

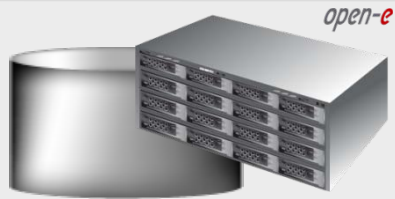


Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

8. Start Failover Service

At this point both nodes are ready to start the Failover service

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

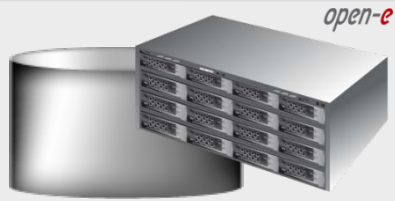
8. Start Failover Service

After clicking the **start** button configuration of both nodes will be complete

NOTE:

You can now connect via your iSCSI initiator and use your targets via the Virtual IP address e.g. 192.168.10.230 (For example, in a Microsoft Windows environment, download Microsoft iSCSI Initiator ver 2.0 or later).

Synchronous Volume Replication with Failover over a LAN *open-e*

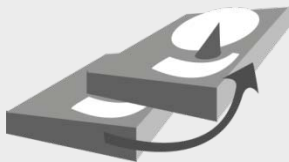


Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

8. Start Failover Service

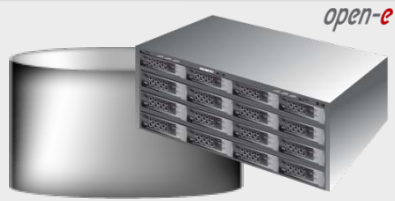
After start Failover, check the status in **Failover status** function. All must read OK. In the task status, the destination volume must be consistent

iSCSI Failover/Volume Replication



Names	Status
Global status	
Service running	ok
Node status	primary/active
Ping node group status	ok
Individual ping node status:	
IP: 192.168.2.106	ok
Communication via:	
bond0	ok
eth1	ok
Task status	
MirrorTask	running
Connection:	Connected
Source info:	
Logical volume:	lv0000
Consistency:	Consistent
Destination info:	
Logical volume:	lv0000
Consistency:	Consistent
IP address:	192.168.1.221

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

9. Test Failover Function

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SETUP CONFIGURATION MAINTENANCE STATUS HELP

You are here: SETUP > network > iSCSI Failover

Interfaces

- eth0
- eth1
- eth2 (bond0)
- eth3 (bond0)
- bond0

iSCSI Failover

- eth0
- eth1
- bond0

Failover manager

Info
Configuration of both nodes finished successfully.

start stop

In order to delegate (switch) active server state to the passive server click the Manual failover button. This will initiate a failover event and switch the primary server to suspend mode, while the secondary server will be promoted to active mode. Please note this will stop the volume replication process.

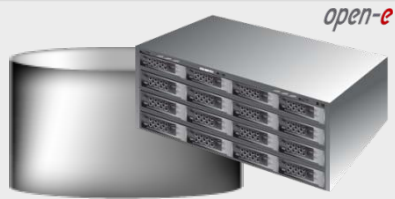
Manual failover

Event Viewer: [icon]

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In order to test Failover in **Manual Failover**, function, click on the **Manual failover** button.

Synchronous Volume Replication with Failover over a LAN *open-e*



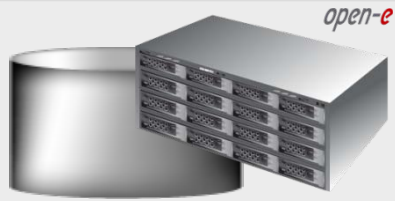
Data Server (DSS1)
Primary node
IP Address: 192.168.0.220

9. Test Failover Function

The screenshot shows the open-e web interface for configuring iSCSI Failover. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: SETUP > network > iSCSI Failover'. The left sidebar has two sections: 'Interfaces' and 'iSCSI Failover', both listing network interfaces: eth0, eth1, eth2 (bond0), eth3 (bond0), and bond0. The main content area is divided into two panels. The top panel is for interface configuration, and the bottom panel is the 'Failover manager'. The 'Failover manager' panel shows an 'Info' message: 'Server is in suspend mode.' Below this are 'start' and 'stop' buttons. At the bottom of the panel is a 'Manual failover' button. A blue arrow points from a text box on the left to the 'Manual failover' button.

After clicking on the **Manual failover** button, primary node enters suspend mode

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address:192.168.0.220

9. Test Failover Function

The Failover status function shows the **Global status** of the primary node. Status service is in **suspend** mode and the node is **inactive**.

The screenshot displays the open-e web interface for the iSCSI Failover configuration. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: SETUP > network > iSCSI Failover'.

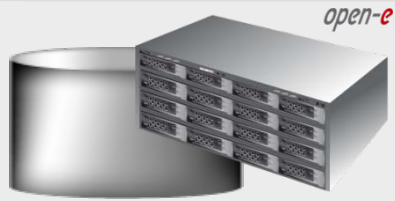
The main content area is divided into several sections:

- Interfaces:** Lists network interfaces: eth0, eth1, eth2 (bond0), eth3 (bond0), and bond0.
- iSCSI Failover:** Lists the same network interfaces as the Interfaces section.
- Failover status:** A table showing the current status of the failover service and node.

Names	Status
Global status	
Service running	suspend
Node status	inactive
Ping node group status	unknown
Individual ping node status:	
IP: 192.168.2.106	ok
Communication via:	
bond0	unknown
eth1	unknown
Task status	
MirrorTask	stopped
- Failover configuration:** Contains an 'Info' message: 'While a failover is turned on, you cannot make changes to its configuration.' Below this, there is a checked checkbox for 'Enable iSCSI failover functionality'. The 'Network connection mode' is set to 'Broadcast', and the 'Network interface for unicast' is set to 'select interface'.

The bottom of the interface shows an 'Event Viewer' icon and the footer text: 'Data Storage Software V6 - All rights reserved'.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

9. Test Failover Function

In Failover status function
Global status shows the status
of the secondary node. The
service status is degraded and
Node status is active.

open-e | ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS | DATA STORAGE SOFTWARE V6

SETUP CONFIGURATION MAINTENANCE STATUS HELP

You are here: SETUP > network > iSCSI Failover

Interfaces

- eth0
- eth1
- eth2 (bond0)
- eth3 (bond0)
- bond0

iSCSI Failover

- eth0
- eth1
- bond0

Failover status

Names	Status
Global status	
Service running	degraded
Node status	secondary/active
Ping node group status	ok
Individual ping node status:	
IP: 192.168.2.106	ok
Communication via:	
bond0	failed
eth1	failed
Task status	
MirrorTask_reverse	stopped

Failover configuration

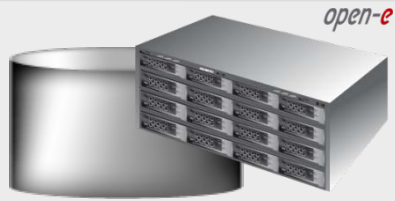
Info
While a failover is turned on, you cannot make changes to its configuration.

Enable iSCSI failover functionality
Network connection mode: Broadcast
Network interface for unicast: select interface

Event Viewer: [icon]

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Synchronous Volume Replication with Failover over a LAN *open-e*

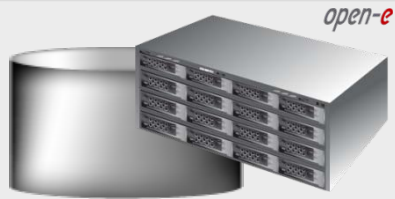


Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

10. Run Failback Function

In order to run Failback in Failover manager function click on the **Sync volumes** button first.

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

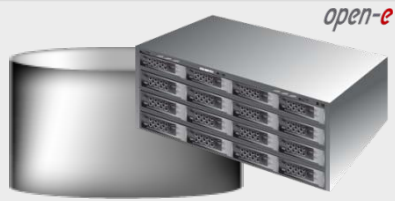
10. Run Failback Function

Failover status

Names	Status
Global status	
Service running	degraded
Node status	secondary/active
Ping node group status	ok
Individual ping node status:	
IP: 192.168.2.106	ok
Communication via:	
bond0	failed
eth1	failed
Task status	
MirrorTask_reverse	running
Connection:	Connected
Source info:	
Logical volume:	lv0000
Consistency:	Consistent
Destination info:	
Logical volume:	lv0000
Consistency:	Consistent
IP address:	192.168.1.220

After synchronization the task status of the destination volume must be **Consistent**

Synchronous Volume Replication with Failover over a LAN *open-e*



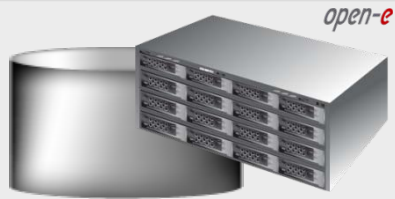
Data Server (DSS2)
Secondary node
IP Address: 192.168.0.221

10. Run Failback Function

The screenshot shows the open-e web interface for a secondary node. The top navigation bar includes 'open-e', 'ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS', and 'DATA STORAGE SOFTWARE V6'. The main menu has 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: SETUP > network > iSCSI Failover'. The left sidebar shows 'Interfaces' and 'iSCSI Failover' sections, both listing network interfaces: eth0, eth1, eth2 (bond0), eth3 (bond0), and bond0. The main content area is titled 'Failover manager' and contains two informational messages. The first message states: 'Volume replication process started. Please go to Failover Status to check the status of your tasks.' The second message states: 'When in secondary mode, the start and stop buttons control this node only. Please use the relevant buttons on the primary node to control both nodes.' Below these messages are three buttons: 'start', 'stop', and 'Failback'. The 'Failback' button is highlighted with a red arrow pointing from a blue callout box on the left. The 'Failback' button is located at the bottom right of the main content area.

In order to return the active server state to the Primary server click on the **Failback** button

Synchronous Volume Replication with Failover over a LAN *open-e*



Data Server (DSS1)
Primary node
IP Address:192.168.0.220

10. Run Failback Function

After clicking on **Failback** button (in Failover manager function on Secondary node) Primary node is now active.

Synchronous Volume Replication with Failover over a LAN *open-e*

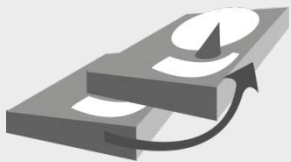


Data Server (DSS1)
Primary node
IP Address:192.168.0.220

10. Run Failback Function

Primary node is active again and ready for Failover.

iSCSI Failover/Volume Replication



The configuration and testing of iSCSI Failover/Failback is now complete.

The screenshot shows the open-e web interface for configuring iSCSI failover. The breadcrumb trail indicates the user is in the 'iSCSI Failover' section. On the left, there are two panels: 'Interfaces' and 'iSCSI Failover', both showing a list of network interfaces (eth0, eth1, eth2 (bond0), eth3 (bond0), bond0) with radio buttons. The 'Failover status' panel on the right contains a table with the following data:

Names	Status
Global status	
Service running	ok
Node status	primary/active
Ping node group status	ok
Individual ping node status:	
IP: 192.168.2.106	ok
Communication via:	
bond0	ok
eth1	ok
Task status	
MirrorTask	running

Below the status table is the 'Failover configuration' section, which includes an information box stating that configuration changes are disabled while failover is active. It also features checkboxes for 'Enable iSCSI failover functionality' and dropdown menus for 'Network connection mode' (set to Broadcast) and 'Network interface for unicast' (set to select interface).

Thank you!