



Open-E High Availability Certification report for Supermicro SuperServer 6027TR-D71RF



Executive summary

After successfully passing all the required tests, the Supermicro SuperServer 6027TR-D71RF is now officially declared as [Open-E](#) High Availability Certified Storage Server.

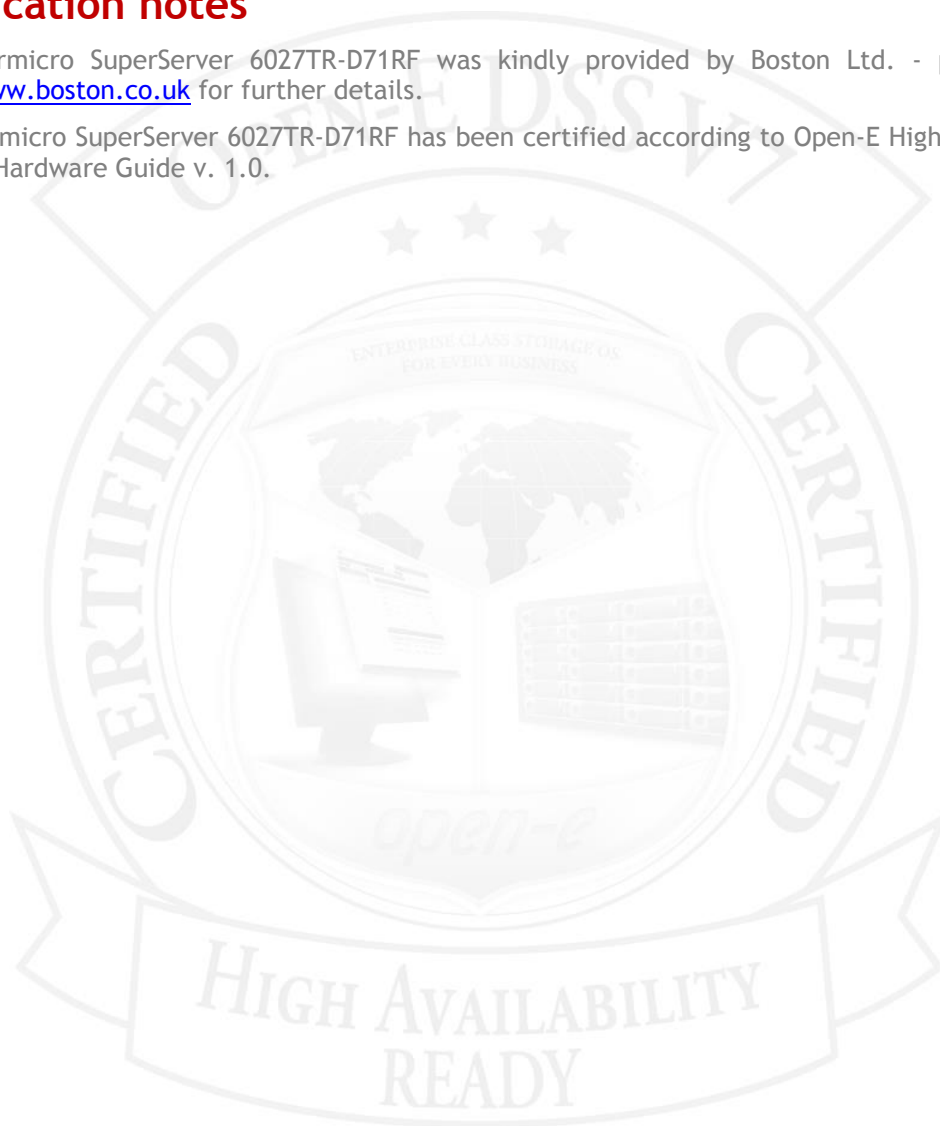
The tests, conducted by Open-E's Quality Assurance team, prove that Open-E High Availability solution works effectively and efficiently on the certified system. The certification also signifies to customers that the Supermicro SuperServer 6027TR-D71RF has met specific Open-E integration and interoperability standards.

The Open-E High Availability solution, based on the Supermicro SuperServer 6027TR-D71RF, is considered to be stable and secure with superb performance.

Certification notes

The Supermicro SuperServer 6027TR-D71RF was kindly provided by Boston Ltd. - please visit <http://www.boston.co.uk> for further details.

The Supermicro SuperServer 6027TR-D71RF has been certified according to Open-E High Availability Certified Hardware Guide v. 1.0.





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High Availability solution hardware components

Technical specification of iSCSI Failover nodes is listed below:

Model	Supermicro SuperServer 6027TR-D71RF
Operating system	Open-E DSS V7 build 7356
Enclosure/chassis	Supermicro CSE-827HD-R1K28B
CPU	2x Intel Xeon E5-2620 2.00GHz
Motherboard	Supermicro X9DRT-HF
Memory	8x 4GB DDR3 ECC-REG Hynix HMT351R7CFR8C-PB
Network	Supermicro AOC-STGN-i2S (i82599ES)
Network	Supermicro AOC-SG-I4 (i82576)
Network	Intel I350 Dual Port Ethernet Controller (on-board)
HW RAID	Supermicro LSI2108 (on-board)
Hard disk drives	6x 3TB Hitachi Ultrastar 7K3000 HUA723030ALA640

TABLE 1: Hardware components list of iSCSI Failover nodes

The Supermicro SuperServer 6027TR-D71RF is a modular server with two iSCSI Failover nodes, which have the same hardware configuration as listed above.



Auxiliary systems hardware components

Auxiliary systems with MS Windows installed, used in Open-E High Available solution Hardware Certification Process.

Model	Supermicro SYS-6026TT-BIBQRF
Operating system	MS Windows Server 2008 R2
Enclosure/chassis	Supermicro CSE-827H-R1400B
Motherboard	Supermicro X8DTT-IBQF
CPU	Intel Xeon E5620 2.40GHz
Memory	6x 4GB DDR3 1333 ECC-REG ATP AL12M72E4BJH9S
Network	Intel Gigabit ET Dual Port Server Adapter (i82576) (on board)
Hard disk drives	1x 750GB Seagate Barracuda ST3750330NS

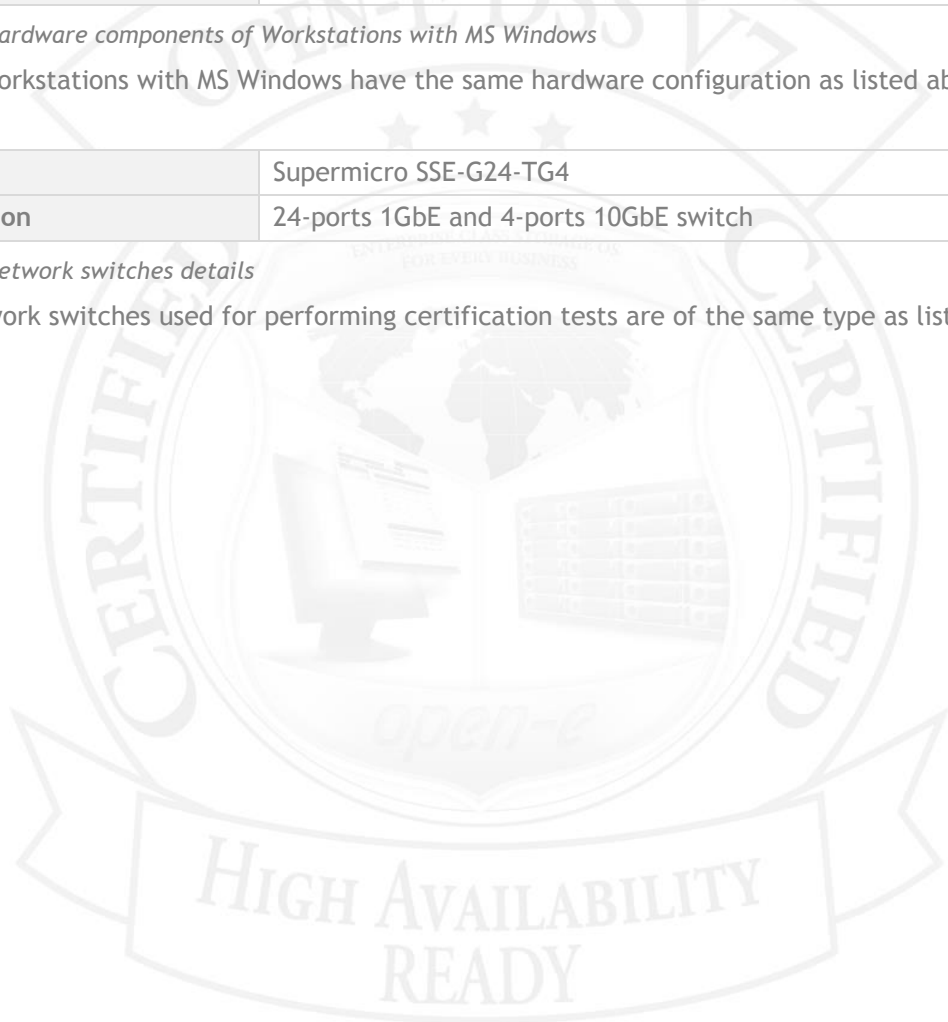
TABLE 2: Hardware components of Workstations with MS Windows

All four Workstations with MS Windows have the same hardware configuration as listed above.

Model	Supermicro SSE-G24-TG4
Description	24-ports 1GbE and 4-ports 10GbE switch

TABLE 3: Network switches details

Both Network switches used for performing certification tests are of the same type as listed above.



High Availability solution performance

Tests performed in this section compare the performance of Active-Passive iSCSI Failover with Active-Active iSCSI Failover available in the Open-E DSS V7 software running on the certified systems.

High Availability solution performance test topology

Network topology for High Availability solution performance testing is shown below.

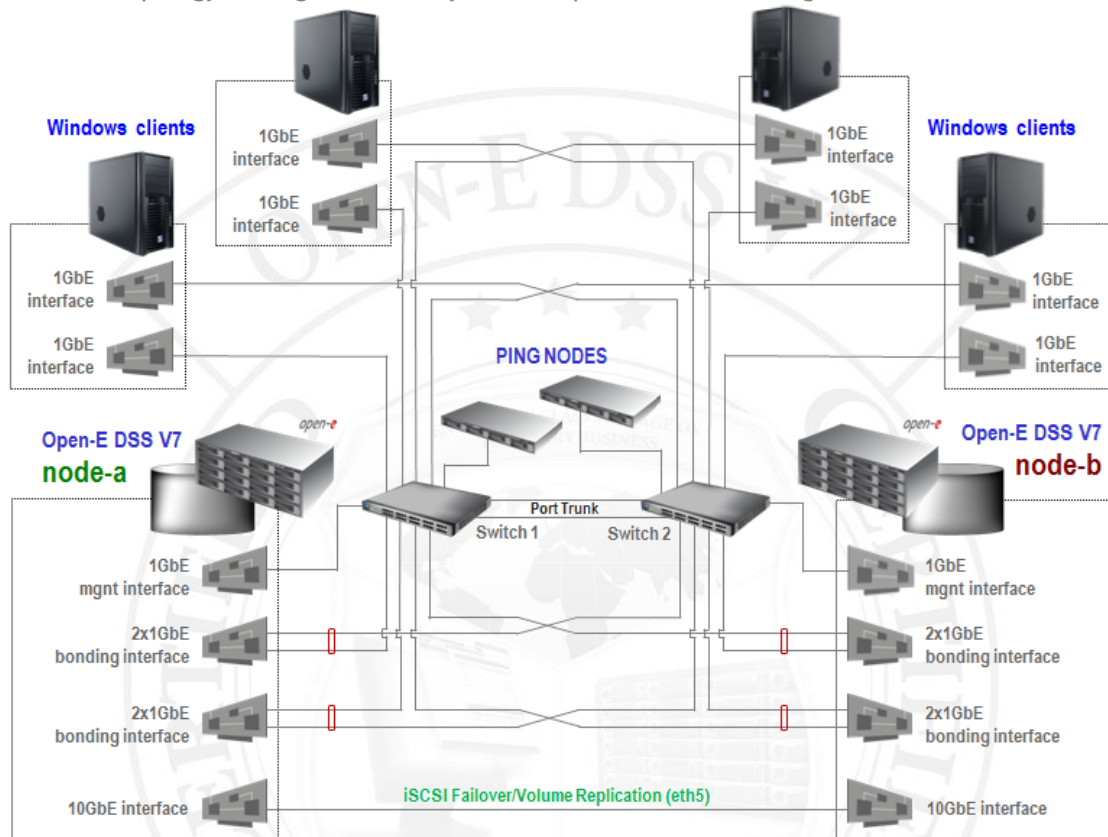


FIGURE 1: Network topology for High Availability performance testing

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Active-Passive iSCSI Failover data throughput performance test

1. Test description

The test relies on using the iSCSI targets exported by Active-Passive iSCSI Failover running on certified systems. The data are copied from four *Workstations with MS Windows* equipped with two 1GbE interfaces each to iSCSI targets located on one active node using the lometer tool. One 10GbE interface is used on each node for Volume replication.

2. Test results for Active-Passive iSCSI Failover data throughput performance using Supermicro AOC-SG-I4 (i82576) on one active node

Active-Passive iSCSI Failover data throughput performance test results			
Block size [KB]	Total write throughput [MB/s]	Total read throughput [MB/s]	Performance test results
4	132.79	165.28	passed
32	416.94	448.72	passed
64	445.32	441.10	passed
128	454.25	455.18	passed
256	443.00	465.98	passed
512	475.19	466.39	passed
1024	447.12	496.92	passed
4096	426.24	467.13	passed

TABLE 4: Active-Passive iSCSI Failover data throughput performance test results table for Supermicro AOC-SG-I4 (i82576) on one active node

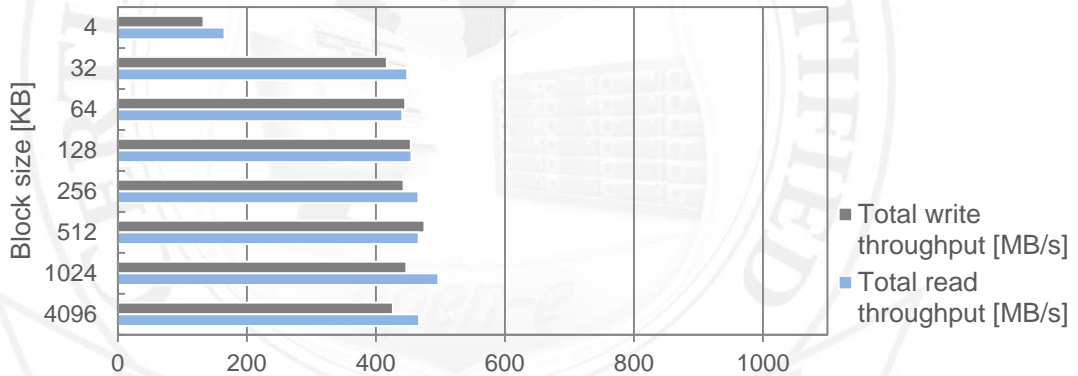


FIGURE 2: Active-Passive iSCSI Failover data throughput performance test results chart for Supermicro AOC-SG-I4 (i82576) on one active node

Active-Active iSCSI Failover data throughput performance test

1. Test description

The test relies on using the iSCSI targets exported by Active-Active iSCSI Failover running on certified systems. The data are copied from four *Workstations with MS Windows* equipped with two 1GbE interfaces each to iSCSI targets located on two active nodes using the lometer tool. One 10GbE interface is used on each node for Volume replication.

2. Test results for Active-Active iSCSI Failover data throughput performance using Supermicro AOC-SG-I4 (i82576) on both active nodes

Active-Active iSCSI Failover data throughput performance test results			
Block size [KB]	Total write throughput [MB/s]	Total read throughput [MB/s]	Performance test results
4	151.21	236.91	passed
32	514.72	872.26	passed
64	582.07	849.94	passed
128	625.97	845.83	passed
256	636.74	877.93	passed
512	670.22	888.39	passed
1024	668.18	893.09	passed
4096	657.85	884.27	passed

TABLE 5: Active-Active iSCSI Failover data throughput performance test results table for Supermicro AOC-SG-I4 (i82576) on both active nodes

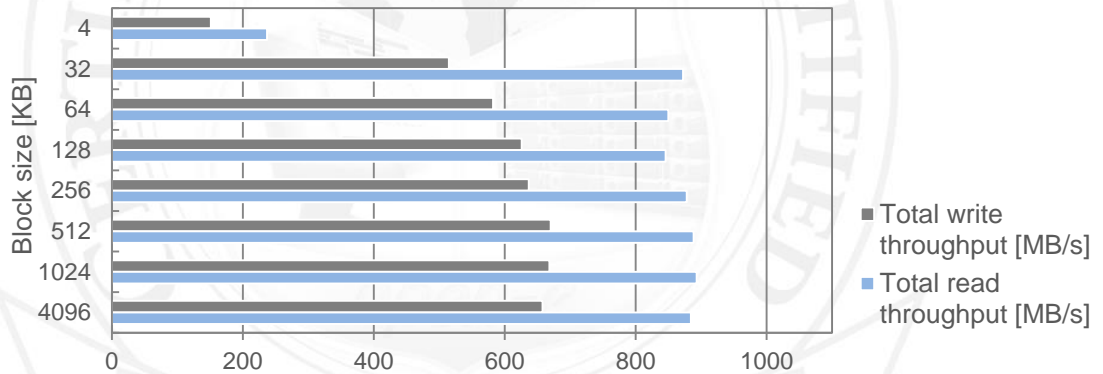


FIGURE 3: Active-Active iSCSI Failover data throughput performance test results chart for Supermicro AOC-SG-I4 (i82576) on both active nodes

Active-Passive iSCSI Failover resource group switching time test

1. Test description

The test relies on copying data of 4MB block size using the lometer tool from four Workstations with MS Windows equipped with two 1GbE interfaces each to iSCSI targets located on one active node. The Resource group switching time is measured under high load for 2, 10 and 20 iSCSI targets located on one active node. One 10GbE interface is used on each node for Volume replication.

2. Test results for Active-Passive iSCSI Failover resource group switching time using Supermicro AOC-SG-I4 (i82576) on both active nodes

Active-Passive iSCSI Failover resource switching time test results		
Total number of targets	Switching time [seconds]	Performance test results
2	1	passed
10	1	passed
20	3	passed

TABLE 6: Active-Passive iSCSI Failover resource group switching time test results table for Supermicro AOC-SG-I4 (i82576) on one active node

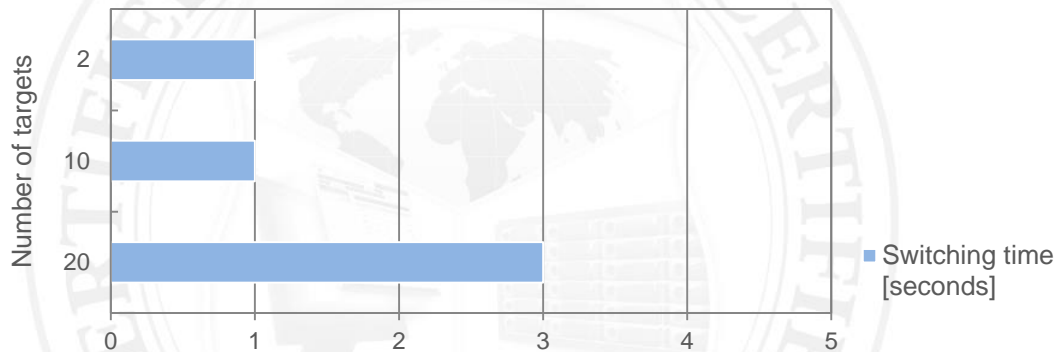


FIGURE 4: Active-Passive iSCSI Failover resource group switching time test chart for Supermicro AOC-SG-I4 (i82576) on one active node

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Active-Active iSCSI Failover resource group switching time test

1. Test description

The test relies on copying data of 4MB block size using the lometer tool from four Workstations with MS Windows equipped with two 1GbE interfaces each to iSCSI targets located on two active nodes. The Resource group switching time is measured under high load for 2, 10 and 20 iSCSI targets located on two active nodes. One 10GbE interface is used on each node for Volume replication.

2. Test results for Active-Active iSCSI Failover resource groups switching time using Supermicro AOC-SG-I4 (i82576) on both active nodes

Active-Active iSCSI Failover resource switching time test results		
Total number of targets	Switching time [seconds]	Performance test results
2	1	passed
10	1	passed
20	2	passed

TABLE 7: Active-Active iSCSI Failover resource groups switching time test results table for Supermicro AOC-SG-I4 (i82576) on both active nodes

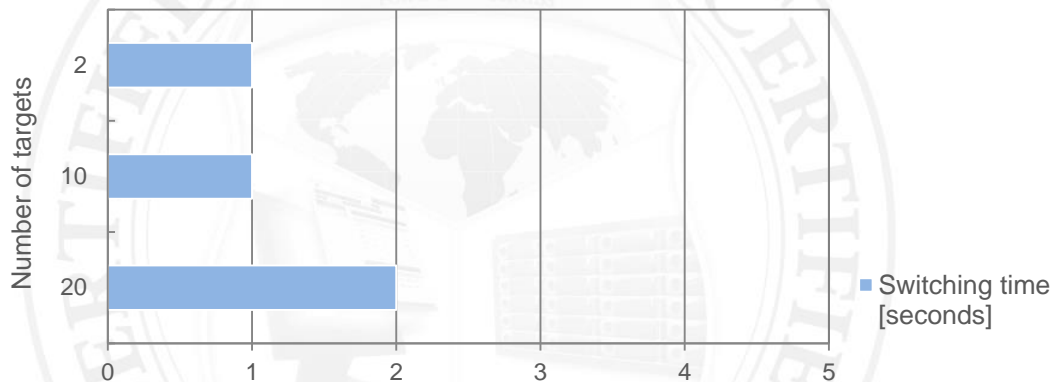


FIGURE 5: Active-Active iSCSI Failover resource groups switching time test chart for Supermicro AOC-SG-I4 (i82576) on both active nodes

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High Availability solution functionality

Tests performed in this section analyze the functionality of [High Availability solution](#) configured as Active-Active iSCSI Failover, available in the Open-E DSS V7 product on the certified systems.

High Availability solution functionality test topology

Network topology for High Availability solution functionality testing is presented below.

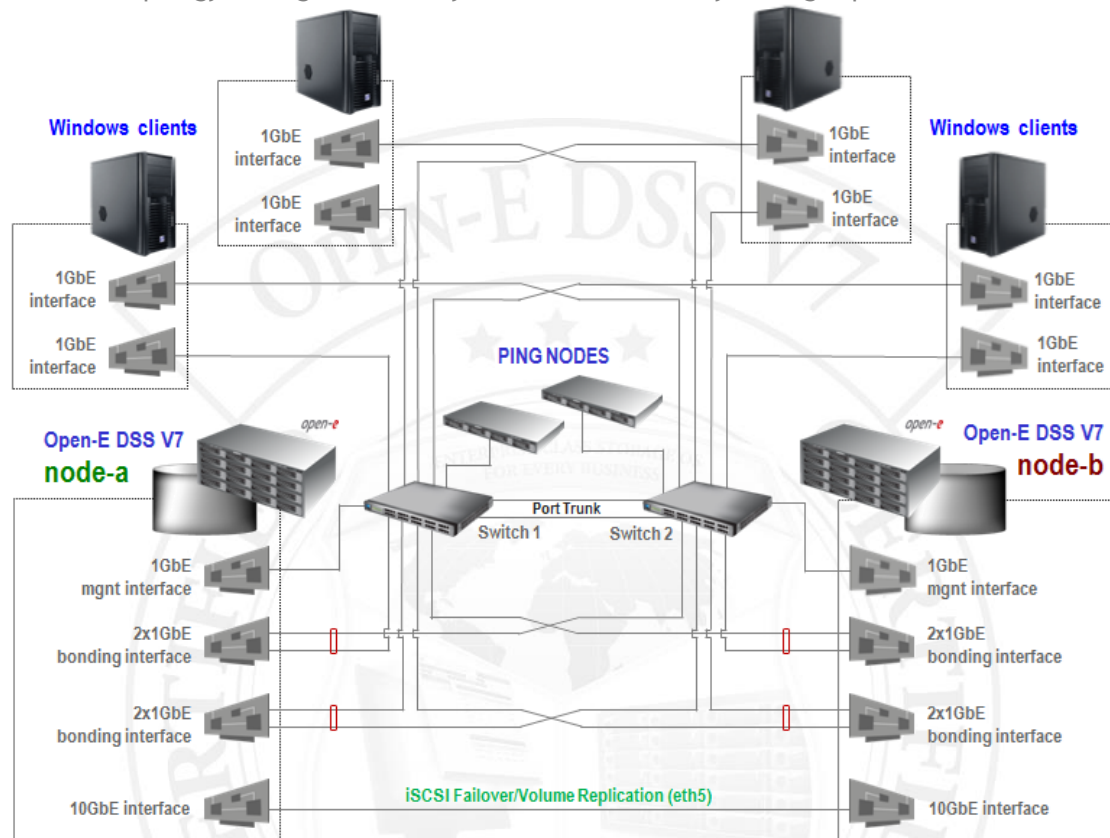


FIGURE 6: Network topology for High Availability solution functionality testing

High Availability solution functionality test

1. Test description

The test relies on performing various actions which should cause Resource group switching during copying data from four *Workstations with MS Windows* equipped with two 1GbE interfaces each to iSCSI targets exported by Active-Active iSCSI Failover. It tests whether failover occurs and if all resources are still reachable for 20 iSCSI targets located on two active nodes. One 10GbE interface is used on each node for Volume replication.

2. Test results for High Availability solution functionality

High Availability solution functionality test		
Total number of targets	Test case	Test results
20	Manual resources transfer test	passed
20	Network malfunction test	passed
20	Reboot test	passed
20	Shutdown test	passed
20	I/O error test	passed

TABLE 8: High Availability solution functionality test results table

