HP Netserver LP 1000r with NetRAID-2M (HP Rack Storage/12)

Windows® 2000 Advanced Server
Cluster Configuration Guide

Introduction

This document defines the server cluster configurations supported by Hewlett-Packard for interconnection of two HP Netserver LP 1000r servers and one or two HP Rack Storage/12 disk drive enclosure(s), with Microsoft® Cluster Server software. These configurations provide high server cluster availability and minimize single points of failure (SPOFs). A configuration certified and supported by both Hewlett-Packard and Microsoft® is included, but any cluster configuration that conforms to the guidelines of this document will be supported by Hewlett-Packard. Deviations from the supported configurations can result in an inoperative cluster, an operating cluster with degraded performance, or hidden SPOFs. Therefore, deviations are not supported. For revision/update information on this document, refer to Versions on page 7.

Cluster Configuration Elements

This section identifies the hardware components, system software, network interfaces, and power distribution arrangement required to build an operational server cluster supported by Hewlett-Packard. The various server cluster elements are listed below and their associated configuration data is detailed in separate tables and illustrations that follow.

- Server configuration
- Shared storage configuration
- Microsoft® and HP certified server configuration
- Intra-cluster (heartbeat) LAN configuration
- Client LAN configuration
- SCSI cabling and power distribution configuration

Server Configuration

Parameter	Specification
Server	
Type	HP Netserver LP 1000r
Number of nodes	Two Each node must be the same server type, but may have different clock speeds, and main memory and cache sizes.
Clock speed	1.26 GHz This certification covers any CPU speed within 500 MHz of the certified rate.
Number of CPUs	Two
BIOS	For CPU clock speeds up to 1 GHz, version range 4.06.12 RA to 4.06.19 RA For CPU clock speeds of 1.26 GHz, version 4.06.03 RO or later
CPU cache	Any size
RAM	256 MB, minimum. Must be HP.
Number of power supplies	One

Server Configuration

Parameter	Specification
I/O slot	PCI slot 1
Default boot order	IDE CD-ROM, FDD, embedded SCSI, PCI slot 1
Local Storage	
Controller	Embedded SCSI
Driver	Sym_u3.sys, version 5.07.00, or later (driver obtained from Navigator CD-ROM L.20.00, or later)
Physical drive location	Server internal drive bays, or HP external drive cabinet (e.g., HP Rack Storage/12)
Disk drives	Must be HP
SCSI bus	Any HP cables that meet SCSI specifications, and any SCSI bus speed
SCSI IDs	Any
System software	
Navigator CD-ROM	Version M.04.00, or later
Operating system Service pack	Microsoft Windows® 2000 Advanced Server Latest service pack version
Power distribution	
Layout	Redundant power distribution units (PDUs) are recommended. See power cabling diagram on page 6.

Shared Storage Configuration

Parameter	Specification
Controller	
Model	HP NetRAID-2M Controller, Model P3411A, or P3475A
Number of controllers	One
BIOS	Disabled
Firmware	Version H.01.08 (firmware obtained from Navigator CD-ROM, version M.04.00, or later)
Driver	Mraid2k.sys, version 5.20 (driver obtained from Navigator CD-ROM, version L.20.00, or later)
NetRAID Assistant	Version B.01.04, or later (software obtained from Navigator CD-ROM, version L.20.00, or later)
SCSI ID	6, 7
Channels	0, 1
RAID levels	1, 5, 10, 50
Logical disks	One per RAID array Eight, maximum, per cluster
Configuration options	Cluster mode on Cache write policy to Write thru
Enclosure	
Disk drives	Any HP drive supported by storage enclosure. Any combination of HP disk models is allowed in an array, on a SCSI channel, or in a cluster.
Number of cabinets	One or two per NetRAID-2M controller

Shared Storage Configuration

Parameter	Specification
Model	Rack Storage/12 D5989C, containing two D6025C SCSI controller cards
Status SCSI ID	5 (fixed)
Disk SCSI IDs	0–3, 8–15 (fixed)
Cables	
SCSI	Any two HP LVD SCSI offset cables per RS/12 from the following list: 1 meter D7131A 2.5 meter D6020A 5 meter D6982A 10 meter D6983A See SCSI cabling diagram on page 5.
Power distribution	
Layout	Redundant power distribution units (PDUs) are recommended. See power cabling diagram on page 6.

Microsoft® and HP Certified Server Configuration

Parameter	Specification
Server	
I/O card slot	PCI slot 1, NetRAID-2M shared storage controller
Network interfaces	Embedded NICs for both intra-cluster (heartbeat) and client LANs
Boot device	Embedded SCSI

Intra-Cluster (Heartbeat) LAN Configuration

Parameter	Specification
Network	
Connection	HP D5954A crossover cable, or equivalent. The intra-cluster LAN may only be used for cluster node communication. It may not be used for client communication.
NIC	
Quantity	One
Model	Embedded NIC- LAN A
Driver	Hptxnt5.sys, version 4.02.27, or later (driver obtained from Navigator CD-ROM L.20.00, or later)

Client LAN Configuration

Parameter	Specification
Network	
Connection	Any LAN
NIC	
Quantity	One
Model	Embedded NIC – LAN B
Driver	Hptxnt5.sys, version 4.02.27, or later (driver obtained from Navigator CD-ROM L.20.00, or later)

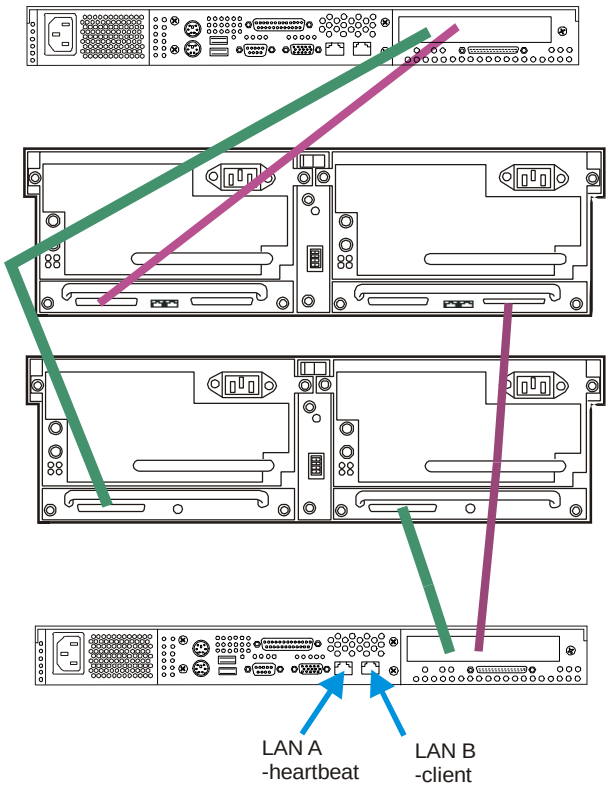
NOTES:

1. Color coding shows that an RS/12 must be cabled to the same NetRAID-2M channel on both nodes. All cables are the same type.

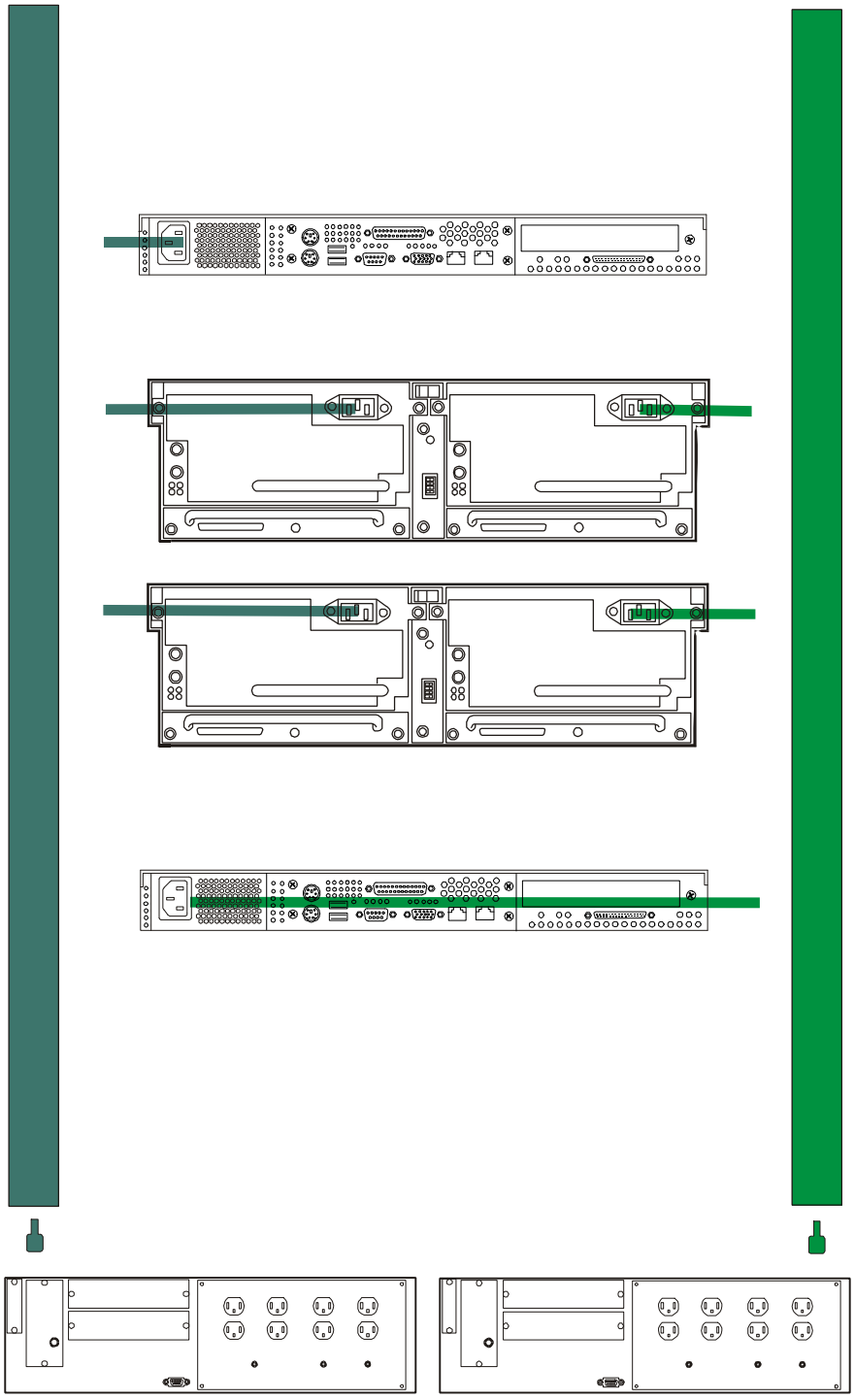
2. Cables between the servers and RS/12s can be any HP LVD SCSI cable up to 10 meters. See “Cables” in the Shared Storage Configuration table for a list of cables that can be used.

3. This diagram shows use of 2 Rack Storage/12s. You can use from 1 to 2 RS/12 storage cabinets per NetRAID-2M.

4. When cabling the network, use LAN A on each node for the heartbeat interconnect, and LAN B for the client network connections.



HP Netserver LP 1000r Cluster using HP Rack Storage/12 Cabling Diagram



Power Cabling to Separate Power Circuits

Versions

7 November 2001	Added support for 1.26 GHz models
13 August 2001	Initial release