

Sun StorEdge™ Network FC Switch-8 and Switch-16 Configuration Supplement for SAN 3.2 Disaster Tolerance Configurations

The rules for the Sun StorEdge™ Network FC Switch-8 and Switch-16 Sun SAN 3.0 have been extended to support additional configurations for disaster recovery scenarios. This document lists the modifications to the configuration rules in the *Sun StorEdge Network FC Switch-8 and Switch-16 Sun Installation and Configuration Guide: Sun StorEdge SAN 3.0 Release*. It also provides illustrative examples to show use of the extended rules.

Extended Rules

- Servers and storage can be in the same name server zone across inter-switch links (ISLs) on separate switches. This enables you to have servers at the recovery site. It also means you can have local and remote storage in the same zone so that storage can be mirrored at both locations.
- Cascaded switches support use of short-wave as well as long-wave GBICs. You can cascade a maximum of two switches with one ISL hop between the initiator and target, with distances between 10 meters and 10 kilometers. ISL hops do not include the connections between hosts and switches or between switches and storage.
- Edge switches can be added to a set of core switches for additional port count and connectivity. Core switches are defined as switches that act as paths between two other switches. If a switch lies between two other switches, it is a core switch. Edge switches do not act as a path between switches. If a switch lies between one other switch and a host or storage device, it is an edge switch.
- The SAN 3.2 release allows linear cascades of up to three switches, with a maximum of two ISL hops between switches connected to host and storage devices. You must install the Storage Automated Diagnostic Environment application release 2.0.1 or a later to support this configuration. Although both short-wave and long-wave GBICs are supported, only one of the two hops can use long-wave GBICs.

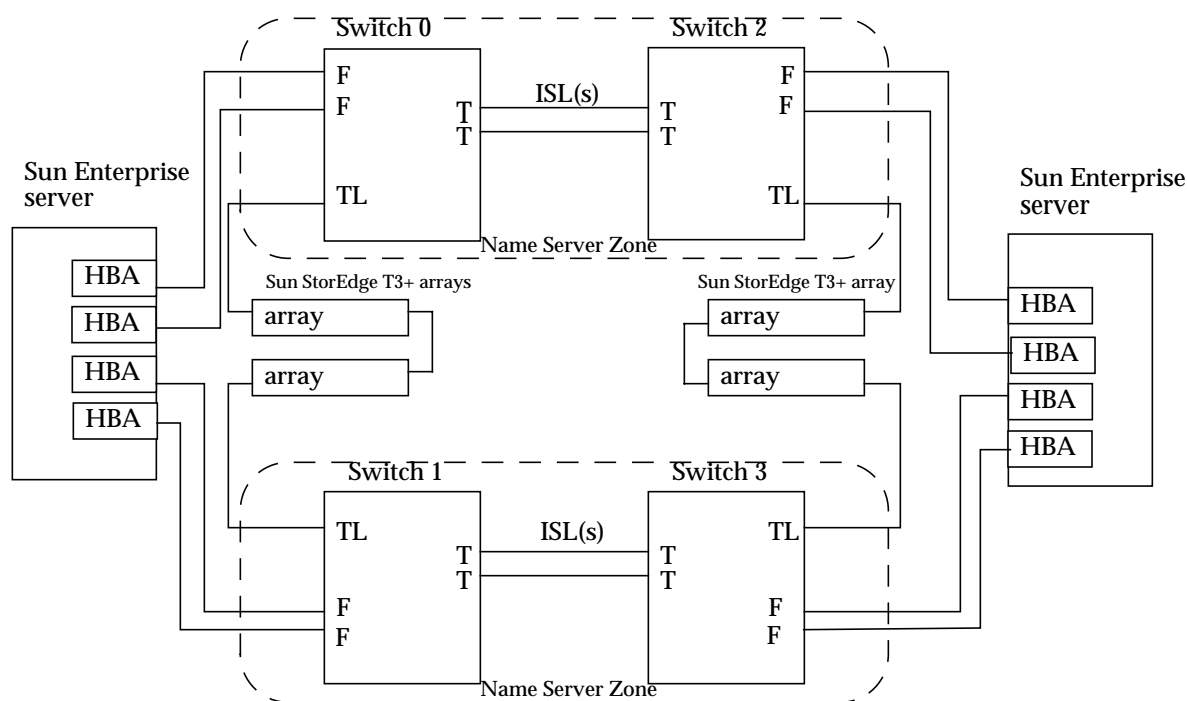


FIGURE 1 Basic Disaster Tolerant Configuration

Explanation Of Figure 1

The follow describes FIGURE 1, which is an example of a disaster recovery configuration that spans two geographically separated sites.

Switches

The switches are cascaded in pairs with long-wave ISLs connected at their T_ports. Note that in future releases, the T_ports will be called E_ports. The hosts connect to the F_ports and the arrays connect to the TL_ports on the switches. Two name server zones aggregate the F_, T_, and TL_ports configured on each pair of switches.

Servers and Arrays

Each server has four host bus adapter (HBA) ports. Two HBA ports are connected to each of the switch fabrics for high availability. The dual HBA port connections denote that the Sun StorEdge Traffic Manager provides load balance support for I/O between the host bus adapters and switches.

At each site, servers and Sun StorEdge T3 or T3+ arrays are configured in the same name server zone on each cascaded switch pair. Because local and remote storage, as well as hosts, are configured in the same zones, the SAN is mirrored at both locations.

ISLs

ISLs can use either short- or long-wave GBICs. Distance can range up to 10 meters for short-wave and up to 10 km for long-wave connections.

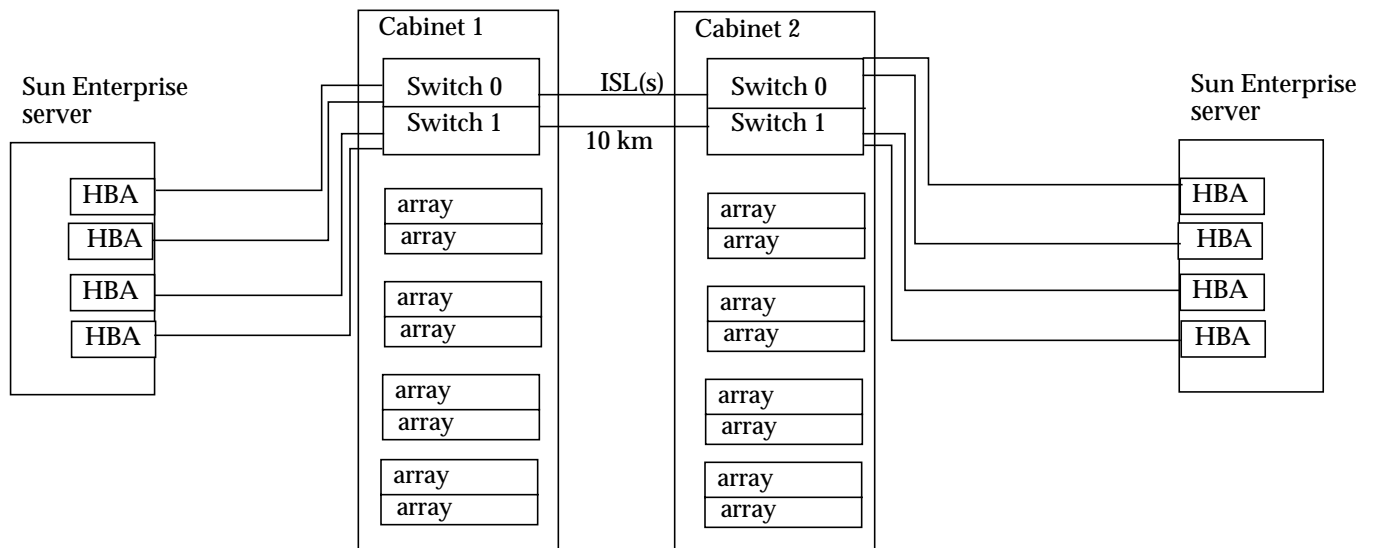


FIGURE 2 Pre-configured Disaster Tolerant Configuration With Sun StorEdge T3+ Array Racks.

Explanation Of Figure 2

FIGURE 2 shows the same configuration as the one in FIGURE 1, except it does not provide port detail and uses a few more arrays. FIGURE 2 shows a disaster recovery configuration using the pre-configured and pre-wired Sun StorEdge T3 or T3+ array cabinets. Each cabinet contains two switches and multiple Sun StorEdge T3 or T3+ Enterprise System arrays pre-configured and pre-wired. The figure shows the SAN connectivity with hosts and storage at both ends of a cascaded switch configuration, where the end sites are 10 km apart. The switch port types are assumed to be set similar to those in FIGURE 1.

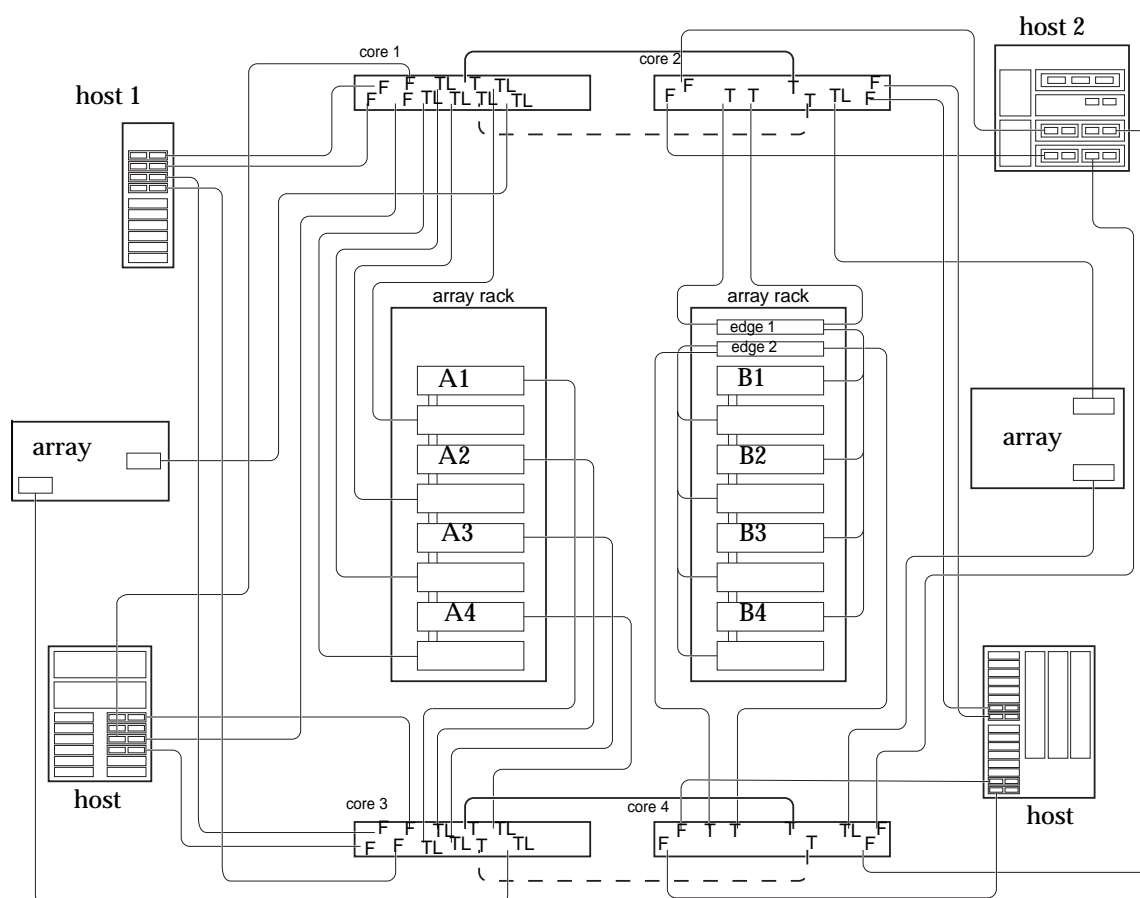


FIGURE 3 Disaster Tolerant Configuration With Edge Switches And Additional Hosts and Storage Devices

Explanation of Figure 3

FIGURE 3 shows the same disaster tolerant configuration as FIGURE 1, but it also includes two edge switches, two additional hosts and two additional arrays. The main difference between FIGURE 1 and FIGURE 3 is that the use of edge switches provides additional ports to enable connectivity to more hosts and arrays.

Switches

Four core switches are split between two campuses located 10 km apart. They use T_ports to connect to one another. In addition, two edge switches housed in array rack B connect to the core switches at campus B. The edge switches also use T_ports to connect to the core switches. Note that in future releases, the T_ports will be called E-ports.

The core switches each have 16 ports, allowing for future expansion of the SAN. The edge switches each have eight ports to maximize array placement in the racks.

Servers and Arrays

Four heterogeneous servers connect to the core switches, using F_ports on the switches. The dual HBA port connections denote that the Sun StorEdge Traffic Manager provides load balance support for I/O between the host bus adapters and switches. Because local and remote storage, as well as hosts, are configured in the same zones at each site, the SAN is mirrored at both locations.

ISLs

Long-wave GBICs and cables are used to connect the core switches at campus A and campus B. Short-wave GBICs and cables connect the edge switches to the core switches in campus B and the Sun StorEdge T3+ partner pairs in rack B.

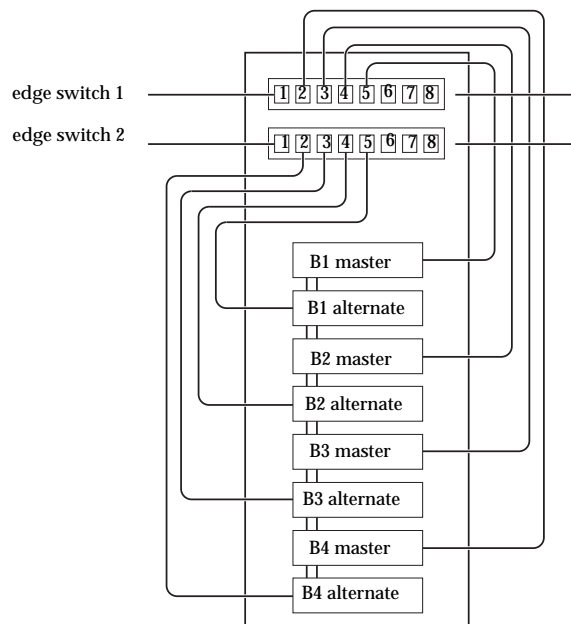


FIGURE 4 Detailed View Of Edge Switches

Explanation of Figure 4

FIGURE 4 shows a blow-up view of the edge switches located in the rack with four Sun StorEdge T3+ partner pairs. Eight-port switches are used to maximize array count in the rack. If you used two 16-port switches instead, you could only fit three array partner pairs in the rack.

Edge switch 1 is connected to all the master arrays and edge switch 2 is connected to all the alternate arrays in the partner pairs. The ports 2, 3, 4, and 5 are configured as TL_ports and are connected to the arrays. Ports 1 and 8 on each switch are configured as T_ports and connect to the core switches. Ports 6 and 7 are free to be connected to other devices.

Related Documentation

TABLE 1 Documentation for the Sun StorEdge™ Network FC Switch-8 and Switch-16 Sun SAN 3.0

Product	Application	Title	Part Number
Switch	Installation/Configuration	<i>Sun StorEdge Network FC Switch-8 and Switch-16 Sun Installation and Configuration Guide: Sun StorEdge SAN 3.0 Release</i>	816-0830-12
SANbox	Installer/User's information	<i>SANbox-16STD Fibre Channel Switch Installer's/User's Manual</i>	875-3141-10
	Installer/User's information	<i>SANbox-8 Fibre Channel Switch Installer's/User's Manual</i>	875-3142-10
	Installer/User's Information	<i>SANbox 8/16 Switch Management User's Manual</i>	875-3060-10
	Installer/User's Information	<i>SANbox 8/16 Switch Management User's Manual</i>	875-3143-10
	Latest Information	<i>Sun StorEdge Network FC Switch-8 and Switch-16 Release Notes¹</i>	816-0842-10
	Software	CDInsert	

TABLE 1 Documentation for the Sun StorEdge™ Network FC Switch-8 and Switch-16 Sun SAN 3.0 (Continued)

Product	Application	Title	Part Number
Arrays	Latest Information	<i>Sun StorEdge A5000 Product Notes</i> ¹	805-1018-13
	Latest Information	<i>Sun StorEdge T3 Disk Tray Release1 Notes</i>	806-1497-12
	Late news - Best Practices	<i>Sun StorEdge A3x00/A3500 FC Best Practices Guide</i>	806-6419-10
	Latest Information	<i>Sun StorEdge A3500FC Release Notes</i> ¹	805-7758-11
Other Components	Sun StorEdge T3 Array/Switch	<i>Sun StorEdge T3Array to Sun StorEdge Network FC Switch Configuration Guide</i>	816-2096-10
	Traffic Management	<i>Sun StorEdge Traffic Manager Installation and Configuration Guide</i>	816-1420-10
Storage Cabinet	Rackmount information Online	<i>Rackmount Placement Matrix</i>	805-4748-xx
Software	RAID software	<i>Sun StorEdge RAID Manager 6.22 User's Guide</i>	806-0478-10
manpage	cfgadm utility	cfgadm_fp	

1. Check for the latest updates at <http://sunsolve.sun.com>.

Accessing Sun Documentation Online

The *Sun StorEdge Network FC Switch-8 and Switch-16 Sun Installation and Configuration Guide: Sun StorEdge SAN 3.0 Release* and a broad selection of Sun system documentation is located at:

<http://www.sun.com/products-n-solutions/hardware/docs>

A complete set of Solaris documentation and many other titles are located at: <http://docs.sun.com>

Sun is interested in improving its documentation and welcomes your comments and suggestions. You can E-mail your comments to Sun at:

docfeedback@sun.com

Please include the part number (816-3652-12) of the document in the subject line of your E-mail.

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