# Sun StorEdge™Network FC Switch-8 and Switch- 16 Best Practices

Sun StorEdge SAN 3.0 Release

Sun Microsystems, Inc.
901 San Antonio Road
Palo Alto, CA 94303-4900 U.S.A.
650-960-1300

Part No. 816-2688-10
September 2001, Revision A

Send comments about this document to: docfeedback@sun.com

Copyright 2001 Sun Microsystems, Inc., 901 San Antonio Road, Palo Alto, CA 94303-4900 U.S.A. All rights reserved.

This product or document is distributed under licenses restricting its use, copying, distribution, and decompilation. No part of this product or document may be reproduced in any form by any means without prior written authorization of Sun and its licensors, if any. Third-party software, including font technology, is copyrighted and licensed from Sun suppliers.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and other countries, exclusively licensed through X / Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, AnswerBook2, docs.sun.com, Sun StorEdge, Sun Enterprise, Java, Solstice DiskSuite, Solstice Backup, StorTools, JDK, and Solaris are trademarks, registered trademarks, or service marks of Sun Microsystems, Inc. in the U.S. and other countries. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc. The Energy Star logo is a registered trademark of EPA.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

As an Energy Star® partner, Sun Microsystems, Inc. has determined that configurations of this product that bear the Energy Star Logo meet the Energy Star guidelines for energy efficiency.

Federal Acquisitions: Commercial Software—Government Users Subject to Standard License Terms and Conditions.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

---

Copyright 2001 Sun Microsystems, Inc., 901 San Antonio Road, Palo Alto, CA 94303-4900 Etats-Unis. Tous droits réservés.

Ce produit ou document est distribué avec des licences qui en restreignent l'utilisation, la copie, la distribution, et la décompilation. Aucune partie de ce produit ou document ne peut être reproduite sous aucune forme, par quelque moyen que ce soit, sans l'autorisation préalable et écrite de Sun et de ses bailleurs de licence, s'il y en a. Le logiciel détenu par des tiers, et qui comprend la technologie relative aux polices de caractères, est protégé par un copyright et licencié par des fournisseurs de Sun.

Des parties de ce produit pourront être dérivées des systèmes Berkeley BSD licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays et licenciée exclusivement par X / Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, AnswerBook2, docs.sun.com,Sun StorEdge, Sun Enterprise, Java, Solstice DiskSuite, Solstice Backup, StorTools, JDK, et Solaris sont des marques de fabrique ou des marques déposées, ou marques de service, de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays. Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux Etats-Unis et dans d'autres pays. Les produits portant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc.

L'interface d'utilisation graphique OPEN LOOK et Sun™ a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciés de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui en outre se conforment aux licences écrites de Sun.

LA DOCUMENTATION EST FOURNIE "EN L'ETAT" ET TOUTES AUTRES CONDITIONS, DECLARATIONS ET GARANTIES EXPRESSES OU TACITES SONT FORMELLEMENT EXCLUES, DANS LA MESURE AUTORISEE PAR LA LOI APPLICABLE, Y COMPRIS NOTAMMENT TOUTE GARANTIE IMPLICITE RELATIVE A LA QUALITE MARCHANDE, A L'APTITUDE A UNE UTILISATION PARTICULIERE OU A L'ABSENCE DE CONTREFAÇON.

Please Recycle

Adobe PostScript

# Contents

**1. Best Practices in the Sun SAN 1**

Configuration Rules Summary 1

Switch Fabric Rules 1

Zoning Rules 1

Cascading Rules 2

OS Related Rules 3

Device Related Rules 3

CHAPTER 1

# Best Practices in the Sun SAN

To facilitate optimum performance in current configurations and to set up your Sun StorEdge Network FC Switch-8 and Switch-16 Version 3.0 software to allow additional features and increased functionality in supported subsequent releases, follow the configuration rules in the Configuration chapter of the *Sun StorEdge Network FC Switch-8 and Switch-16 (Version 3.0) Configuration and Installation Guide*.

A brief summary follows.

## Configuration Rules Summary

### Switch Fabric Rules

- Sun StorEdge Switch-8 or Switch-16
- Switch Port Types
  - SL_Port (private loop port)
  - TL_Port (translated loop port)
  - F_Port (point to point Fabric port
  - T_Port (trunk port for switch cascading)

### Zoning Rules

- SL zones
- Nameserver zones

SL zones and nameserver zones meet requirements for security and heterogeneous device connectivity on the same switch. They allow for private loop and Fabric devices to co-exist on the same switch without affecting each other.

- Multiple zones
- Hard zones

  Hard zones increase security and allow for dedicated resources, better performance, better fault isolation, and reliability in cascaded switch configurations.

- Use switch port-based zoning.

  You must create zones by grouping switch ports logically (port-based zoning). This kind of zoning scheme is easy to use. It allows you to create zones during switch Fabric installation and setup. You can add more storage and more hosts later.

- Create non-overlapping zones.

  This provides resource sharing among all the devices in one zone. It ensures that events in one zone do not affect the reliability and performance of other zones. InterSwitch Links (ISLs) can be shared across soft zones.

- Maximum zones per 16-port to 16-port cascading = 30
- SL zones and nameserver zones must be in different hard zones. You can create hard zones to meet security and resource allocation requirements.

## Cascading Rules

- No hub to switch cascading
- Long distance access, a maximum of two switches

  In addition to meeting current maximum connectivity requirements for the storage platforms, this serves as the building block for more complex topologies in future SAN offerings.

- 16-port and 8-port switches can be cascaded together,
- Maximum distance = 10 kilometers
- Do not configure both local and remote storage in the same zone.

  Configure local and remote storage in separate zones for disaster tolerant mirroring applications. Such configurations can also guarantee no single point of failure.

- The number of ISLs equals the number of initiators using the ISLs.

  This guarantees that ISLs are not a bottleneck for I/O traffic.

- Configure at least two ISLs per cascaded configuration.

This provides a reliable configuration tolerant of at least one ISL failure.

## OS Related Rules

- All hosts in a zone must be running Solaris 8, Release 4.01 or a subsequent supported version.
- You can mix Sun StorEdge PCI Single Fibre Channel Network Adapters, Sun StorEdge PCI Single Fibre Channel Network Adapter+'s, and Sun StorEdge CPCI Dual Fibre Channel Network Adapter on the host and in the switch zones.
- Host platforms:
  - Sun Enterprise™ E220R, E250, E420R, and E450 server hosts
  - Sun Enterprise E10000 server host
  - Sun Enterprise E3000-E6000 server hosts
  - Sun Enterprise E3500-E6500 server hosts
  - Sun Enterprise F3800 server host (only with the Sun StorEdge CPCI Dual Fibre Channel Adapter)
  - Sun Enterprise F4800 and F4810 server hosts
  - Sun Enterprise F6800 server host

  Different classes of host platforms can co-exist in the same zone.

## Device Related Rules

- Block storage, sequential storage, and file access devices are supported.
  - Sun StorEdge T3 and T3+ arrays
  - Sun StorEdge A5200 array
  - Sun StorEdge A3500FC array
  - Sun StorEdge L180 Tape Library with STK 9840 tape drives
  - Sun StorEdge L700 FC Tape Library with STK 9840 tape drives
- Configure each zone with only type of storage device.

  You can configure hosts to access heterogeneous storage device by configuring zones. Different kinds of devices can co-exist in the same SAN, but they must be grouped in separate zones.

  See the configuration chapter of the *Sun StorEdge Network FC Switch-8 and Switch-16 Installation and Configuration Guide* for the maximum configuration limits per zone for each device.