

Future of Enterprise Storage and Emerging Standards

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The Problem:

- ◆ **Lack of Centralized Storage Management**
- ◆ **Disks Getting Faster and Bigger**
- ◆ **Applications Require More Online Storage and Faster Access**
- ◆ **Customers Demand Enterprise Wide, Multi-Vendor Connectivity**

Fibre Channel: Next Generation Storage

- ◆ **Standards Based**
- ◆ **Enterprise-Wide**
- ◆ **Low-Latency, High-Bandwidth**
- ◆ **Provides for Centralized Management**



What is Fibre Channel?

- ◆ **Flexible Standard Including Three Connection Methods:**
 - ◆ **Point-to-Point**
 - ◆ **Arbitrated Loop**
 - ◆ **Switched Fabric**
- ◆ **100 MB/sec, Full Duplex**
- ◆ **Designed for Redundant Hot-Plugability**
- ◆ **Multiple Protocol Support**
 - ◆ **TCP/IP, ATM, etc.**

Fibre Channel Arbitrated Loop FC-AL

- ◆ **126 Nodes in a Loop Topology**
- ◆ **Nodes can be:**
 - ◆ **Disk, Tape, Server**
- ◆ **Simple, Straight-Forward Connection**
- ◆ **Support Majority of System Needs**
- ◆ **Most Popular Choice**

Fibre Channel Switched Fabric

- ◆ **Switched Interconnect for High-Bandwidth Operations**
- ◆ **Scalable by Adding Switches and Connections**
- ◆ **Connection of Heterogeneous Systems**
- ◆ **Centralized Management**

Fibre Channel Point to Point

- ◆ **Simplest Connection Method**
- ◆ **Best Bandwidth/Latency -**
 - ◆ **No Overhead**
- ◆ **Sun Sparc Storage Array for Example**

SCSI v. Fibre Comparison

Feature:	Ultra-SCSI	FC-AL
Data Rate	40MB/sec Single Duplex	100MB/sec Full Duplex
Connections Per Interface	2-16	2-126
Distance: Copper	25 Meters	30 Meters
Distance: Optical	N/A	10 Kilometers
Other Protocol Support	No	Yes
Switched Fibre Capable	No	Yes
Hot Pluggable Capable	Yes	Yes



Sun Storage Strategy

- ◆ **Continue Hardware RAID/SCSI**
 - ◆ **Good Workgroup Solution**
 - ◆ **Continue Point-to-Point Fibre**
 - ◆ **Low-Cost, Easy to Configure**
 - ◆ **Enhance Bandwidth at High-end**
- ◆ **Break into New Markets with Open Storage Products**

Sun and Open Storage

- ◆ **Drive Standards Based Network Attached Storage**
- ◆ **Become a Market Leader for Fibre Channel**
- ◆ **Integrate Networked Storage into Sun Cluster Strategy**

