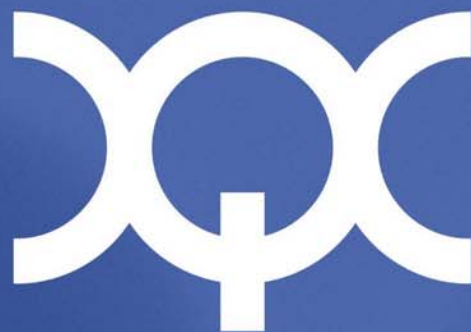


SIMPLE | LOW COST | SANS

POWERED BY
QLOGIC



QLOGICTM

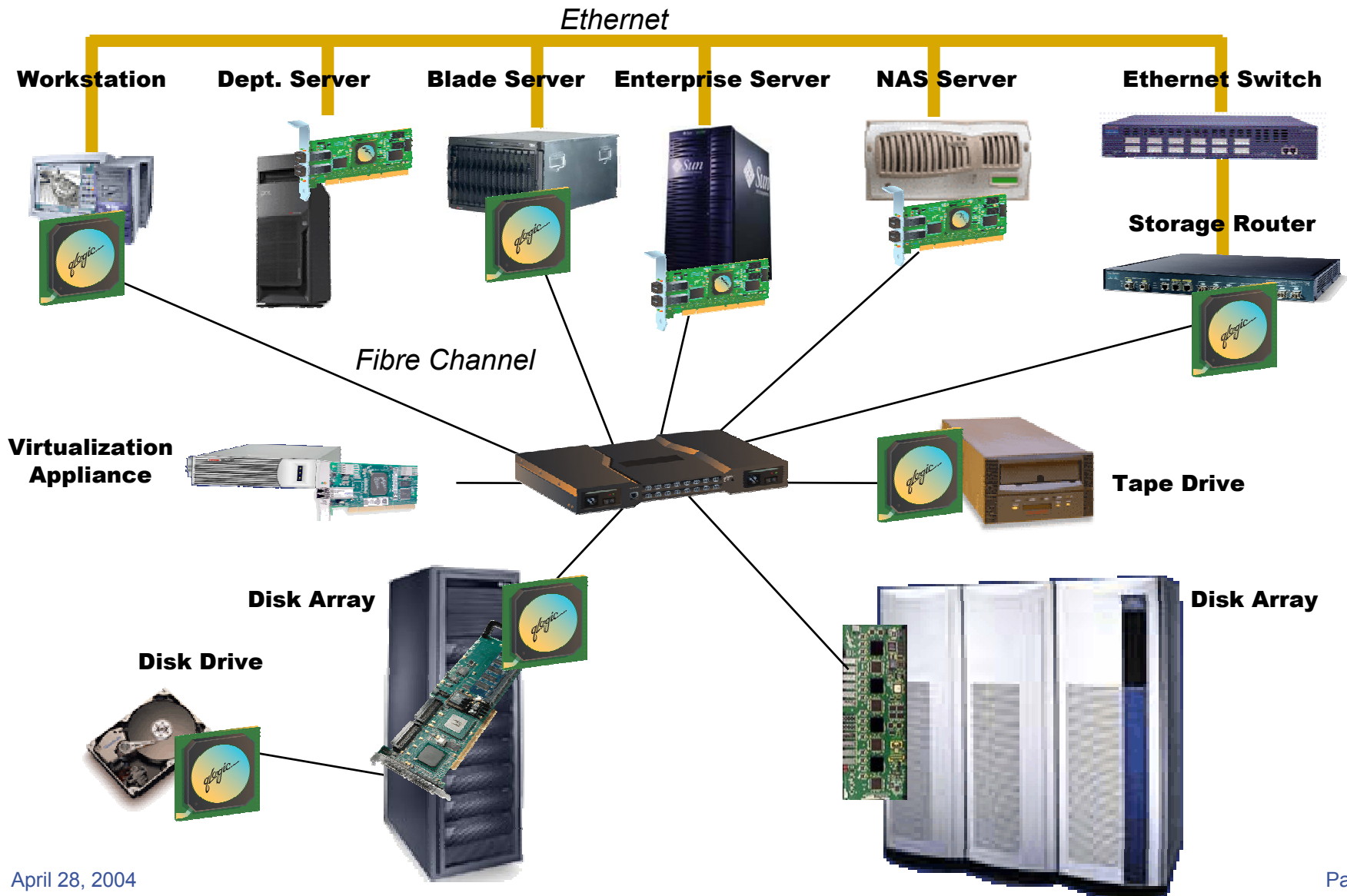
QLogic Corporation

Taking Cost and Complexity out of SAN
April 2004

- QLogic Introduction
- Standardizing on HP branded QLogic HBA's
- The new SME initiative
 - Bundled solutions
 - Low cost HBA's and switches
- Simplicity through software
 - Windows Server 2003 VDS
 - SANsurfer Manager
- The new SANbox 5200 stackable switch
- iSCSI value proposition

- Development Centers
 - Aliso Viejo, California – I/O Chips and HBA's
 - Roseville, California - iSCSI
 - Eden Prairie, Minnesota – Fibre Channel Switches
 - Austin, Texas – Enclosure and Baseboard Management Chips
- OEM Storage I/O Leader
 - Chips, Adapters, Switches
 - Software & Qualification Services
- Technology Agnostic
 - SCSI, FC, iSCSI, SAS & sATA
 - FC: 1Gb, 2Gb, 4Gb, 8Gb & 10Gb
 - Sbus, cPCI, PCI, PCI Express, PCI-X 1.0 and 2.0
- Low-cost / High-performance Leadership
- Number of Employees: 790+
 - 55%+ Engineering

SAN Infrastructure *powered by QLogic*



IDC Reaffirms HBA Leadership



IDC March, 2004	Revenue (M)		Ports	
	2003	Y:Y Change	2003	Y:Y Change
Emulex	\$327.80	51.9	487,000	14.5%
QLogic	\$266.40	84.5	487,000	29.6%
JNI	\$20.80	-14.60	28,900	-33.5%

IDC March, 2004	Revenue		Ports	
	2003 Market Share	Market Share Gain	2003 Market Share	Market Share Gain
Emulex	45.9%	-0.8%	43.4%	-1.6%
QLogic	37.3%	6.5%	43.4%	7.4%
JNI	2.9%	-3.1%	2.6%	-2.9%

Accelerating market share...Outpacing the competition!

■ Fibre Channel HBA's

- Sun Solaris

HP Name	HP Part #	Description	QLogic Part #
FCA2257p	254456-B21	2Gb/1-Port, PCI	QLA2310
FCA2257s	254458-B21	1Gb/1-Port, S-Bus	QLA2202FS
FCA2257c	254457-B21	1Gb/1-Port, cPCI	QLA2202F

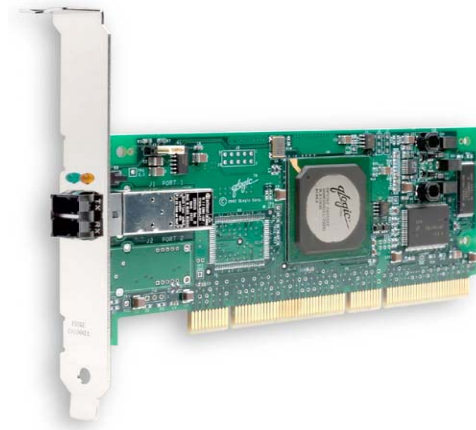
- Now supports Solaris 9 for EVA
- EVA, HSG, MA, EMA and XP support
- sBus, cPCI & PCI

■ Fibre Channel HBA's

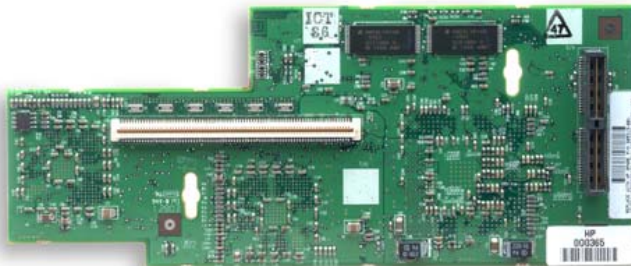
- ProLiant Windows, Linux and Netware

HP Name	HP Part #	Description	QLogic Part #
FCA2214	281541-B21	2Gb/1-Port, PCI-X	QLA2340
FCA2214DC	321835-B21	2Gb/2-Port, PCI-X	QLA2342
FCA2210	281540-B21	2Gb/1-Port, PCI-X	QLA2340

- OS support
 - Windows and Linux support on one HBA – FCA2214/2214DC
 - Netware - FCA2214 and FCA2210 are the same hardware
- Server support
 - ProLiant ML, DL and BL servers
- Storage support
 - HP EVA, MSA, XP, HSG and VA storage
- Free Software
 - Linux driver feature, Failover support for XP and VA today
 - MSA and EVA support in the future
- FCA2214 is the exclusive HBA for the new HP StorageWorks MSA1000 kits
 - SAN Starter Kit (353803-B22)
 - High Availability Kit for Windows (353804-B21) or Linux (353805-B21)
 - DL380 G3 Packaged Cluster with MSA1000 (351027-001)



- ProLiant BL20p Generation 2
 - Mezzanine Card (Fibre Down)
 - 2Gb, 2-Port connectivity
 - 16 ports per rack
 - Single chip HBA
 - Lower Price/Port
 - Extremely Reliable
 - Same ASIC as the FCA2214/2214DC
 - Linux driver failover support for XP and VA today
 - MSA and EVA support in the future



Failover and Secure Path



Features	HP QLogic Failover (SPIFFI)	HP Secure Path
Operating Systems	Linux	HP-UX, Windows 2000, Windows Server 2003, Linux, SUN, NetWare, and IBM-AIX
Load Balancing	Static	Static/Dynamic
Paths to LUN	16	32
Maximum # of HBAs/server	4	16
Auto-failover/failback	Yes	Yes
Volume Management	No	Yes
Cluster Support	Yes	Yes
GUI Application	SANsurfer Manager	Secure Path Manager
Pricing	Included free with the QLogic HBA	Cost based on the number of servers

QLogic Failover is a driver feature not a separate application.

HP supports Failover for XP and VA only with MSA and EVA support in the works.

QLogic supports Windows, Linux, Solaris and Netware for SPIFFI compliant devices.

HP Driver Download Page



Here is where to get it

<http://h18006.www1.hp.com/storage/saninfrastructure.html>

The screenshot shows a Microsoft Internet Explorer browser window with the address bar displaying http://h20000.www2.hp.com/bizsupport/TechSupport/DriverDownload.jsp?pnameOID=315741&taskId=135&locale=en_US&prodTypeId=12169&.... The page content includes a left sidebar with navigation links, a main content area with a language selector set to English (US), and three sections of driver downloads: Driver Storage Controllers - FC HBA, Firmware Storage Fibre Channel, and Utility FC HBA. Each section contains a table of drivers with columns for description, date, revision, size, and a download button.

software/driver language >>

quick jump to downloads by category...

- » Driver Storage Controllers - FC HBA
- » Firmware Storage Fibre Channel
- » Utility FC HBA

SUSE LINUX Enterprise Server 8

☒ [subscribe to driver and support alerts](#)

Driver Storage Controllers - FC HBA

description	date	rev	size	
Driver for the FCA2214, FCA2214DC, and BL20p G2 Mezzanine Card	8 Oct 2003	6.0.4 (archived)	1.7 MB	download >>
Driver for FCA2214, FCA2214DC, BL20p G2 Mezzanine Card	14 Oct 2003	6.06.50 SUSE SLES8	2.0 MB	download >>

Firmware Storage Fibre Channel

description	date	rev	size	
BIOS for FCA2214 and FCA2210	3 Oct 2003	1.34	128 KB	download >>

Utility FC HBA

description	date	rev	size	
Utility - Sansurfer Utility	14 Oct 2003	sansurfer_install 32 bit	48 MB	download >>

■ Fibre Channel HBA's

- HP 9000 and Integrity servers

HP Part #	Description	QLogic Part #
A6826A	2Gb/2-Port, PCI-X	QLA2342

- First and **only** 2Gb, dual-channel HBA for HP9000 and Integrity servers
- HP-UX support
 - HP9000 PA-RISC servers running HP-UX 11i v1
 - Integrity servers running HP-UX 11i v2 released this March!
- Linux support for HP Integrity servers is officially released
 - Entry level servers that support Linux
 - Mid-range and Superdome servers when Linux support is available
- Two more on the way
- Storage support
 - HP EVA, VA, XP and DS2405
 - EMC Symmetrix DMX and 8000
- **4 OS's, 2 Server Platforms, 1 HBA**



■ Fibre Channel HBA's

- HP 9000 and Integrity servers

HP Part #	Description	QLogic Part #
A9782A	2Gb/1-Port FC w/ Optical GigE	ISP2312 ASIC
A9784A	2Gb/1-Port FC w/ Copper GigE	ISP2312 ASIC

- HP-UX 11i v1 and HP-UX 11i v2
 - HP9000 and Integrity servers
 - Limited to 3.3 volt slots, no 5.0 volt support
 - EVA, VA, XP and DS2405 HP storage
 - EMC Symmetrix DMX and 8000
- Linux support in the works



- HP leverages the ISP2312 Fibre Channel ASIC in 8 products!
 - FCA 2210, 2214 and 2214DC for ProLiant servers
 - Mezzanine Card for blade servers
 - A6826A, A9782A and A9784A for Integrity and HP9000 servers
- HP leverages QLogic's Solaris experience and offers the FCA2257 family
- HP leverages QLogic's Windows and Linux drivers for ISS, NSS and BCS HBA's!
 - HP FCA2214, FCA2214DC, Mezzanine Card and A6826A.
- Broad Support
 - Windows, HP-UX, Netware, Linux and Solaris operating systems
 - ProLiant, Integrity, HP9000 and Sun server platforms
 - StorageWorks XP, VA, EVA, MSA and other HP arrays
 - EMC Symmetrix support from HP BCS
- Simplicity - 1 proven ASIC, drivers and utilities to be familiar with
- Savings – Less spares to stock



PRESS RELEASE

FOR IMMEDIATE RELEASE

Editor's Contact:
STEVE STURGEON
QLogic Corporation
(949)389-6268
steve.sturgeon@qlogic.com

Investor's Contact:
MICHAEL ROE
QLogic Corporation
(949)389-6440
michael.roe@qlogic.com

QLogic Launches Initiative to Simplify SANs
QLogic and Partners Support Windows Server 2003 SAN Facilities
New SME Switches, Software and SAN Connectivity Kit for Windows
Server 2003 Introduced at SNW

STORAGE NETWORKING WORLD, ORLANDO, Fla., October 27, 2003 - QLogic Corp. (Nasdaq:QLGC), the company that powers storage area networks (SANs), today launched an initiative to simplify and lower the cost of SANs for small and medium enterprises (SME). With the support of HP, Intel, LSI Logic, Microsoft and Seagate, the company is demonstrating its new SME products at Storage Networking World in Orlando including: SANbox 5200, the industry's first stackable Fibre Channel switch featuring installation and zoning wizards for breakthrough ease-of-use; SANsurfer® VDS Manager, a Windows application providing one user interface for any disk array; and the SAN Connectivity Kit for Windows Server 2003, a turnkey SAN in a box.

"The benefits of storage networking are clear, but by the costs and complexities of SAN deployment and management," said Chris Phillips, general manager of the Enterprise Storage Division at Microsoft. "Microsoft Windows Server 2003, combined with products from QLogic and its partners, allows IT managers to build and operate SANs more easily and efficiently."

Small and Medium Enterprises
Small and medium enterprises (SME) are the backbone of the economy. According to a recent study, small and medium businesses account for 90% of all server storage. SAN deployment for SMEs has amounted to a significant portion of the total SAN facilities nationwide, and the adoption of SANs is expected to continue to grow.

QLogic Uses VDS
QLogic uses VDS (Virtual Disk Services) to provide a single user interface for any disk array, making it easier to manage and operate SANs.

Oct 2003

QLogic Launches Initiative to Simplify SANs

QLogic and Partners Support Windows Server 2003 SAN Facilities

New SME Switches, software and SAN Connectivity Kit for Windows Server 2003 introduced at SNW

"The benefits of storage networking are clear, but customers are **challenged by the costs and complexities** of SAN deployment and management," said **Chris Phillips**, general manager of the **Enterprise Storage Division** at **Microsoft**. "Microsoft Windows Server 2003, combined with products from QLogic and its partners, allows IT managers to build and operate SANs more easily and efficiently."

■ MSA Smart Bundles

- SAN Starter Kit (353803-B22)
 - Includes: MSA1000, 2 FCA2214 HBAs, 1 MSA SAN switch and cables
- High Availability Kit for Windows (353804-B21)
 - Includes: Additional MSA1000 controller, 2 FCA2214 HBAs, 1 MSA SAN switch, cables and Secure Path for Windows
- High Availability Kit for Linux (353805-B21)
 - Includes: Additional MSA1000 controller, 2 FCA2214 HBAs, 1 MSA SAN switch, cables and Secure Path for Linux
- DL380 G3 Packaged Cluster with MSA1000 (351027-001)
 - Includes: 2 ProLiant DL380 servers, 1 MSA1000, 2 FCA2214 HBAs, 1 MSA SAN switch and cables

■ FCA2214 is the exclusive Fibre Channel HBA for the new HP StorageWorks MSA Smart Bundles

■ Savings

- Up to 24% off buying the parts separately
- Instant rebates from HP
- Additional bundles from HP
- Investment Protection – use existing HP universal 1" drives

■ Simplicity

- 1 part number to order to get started
- HP DtS technology – data migration in minutes



- New HBA's and switches that are complementary to current products
- Reduced cost and complexity
 - Improved software and documentation
- Fully standards compliant
- Attributes “matched” to SME SAN market requirements
- First time SAN installations
- Embraced by OEM's

Simplify & Cost Reduce SAN Array Management



EMC²
where information lives



IBM



One user interface...Any disk array

VDS Manager...for Non-Experts



QLogic SANsurfer VDS Manager

File LUN & Server Help

Subsystem-LUN View
Server-LUN View

Operations

- Create LUN Wizard
- Assign LUN to Server
- Expand LUN Size
- Shrink LUN Size
- Delete LUN
- Add/Remove LUN Plex
- Mount LUN Wizard
- Refresh Server List

MSA 1000 1

Subsystem Id: MSA 1000 1
Status: Online
Health: Healthy
Capabilities: Masking Plexing Remapping Extents Checksum

Total capacity: 119.77 GB
Allocated: 6.88 GB

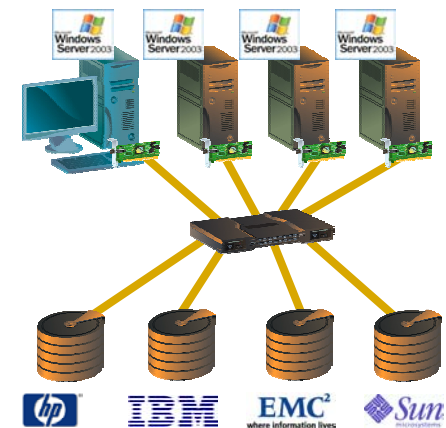
Subsystem Details

Subsystem LUN List

Name	Identifier	Size	Status	Health
MSA 1000 1 LUN 0	MSA 1000 1 LUN 0	2.95	Failed	Unknown
MSA 1000 1 LUN 1	MSA 1000 1 LUN 1	3.93	Online	Healthy

VDS included with Windows Server 2003

Manage storage access for many servers



Any Disk Array

GUI
Auto Discovery
LUN Wizard
RAID Configuration
Disk Formatting

SANsurfer Manager – Simplifies



- **ONE** application for **HBAs** and **Switches** to **Simplify** Device Management and lower TCO
 - ONE GUI
 - ONE Rollout
- **Guaranteed Interoperability**
- **Free of Charge**
- **Major OS support**
 - Windows, Linux, Netware and Solaris
- **FC and iSCSI support**
- **GUI and CLI**
- **Local and Remote Management**

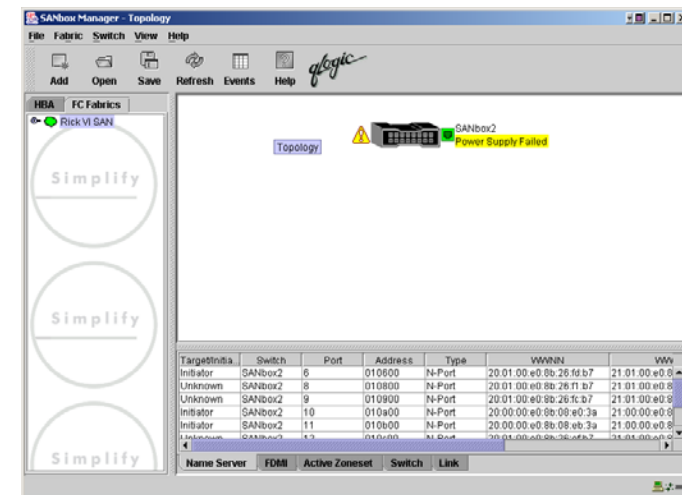
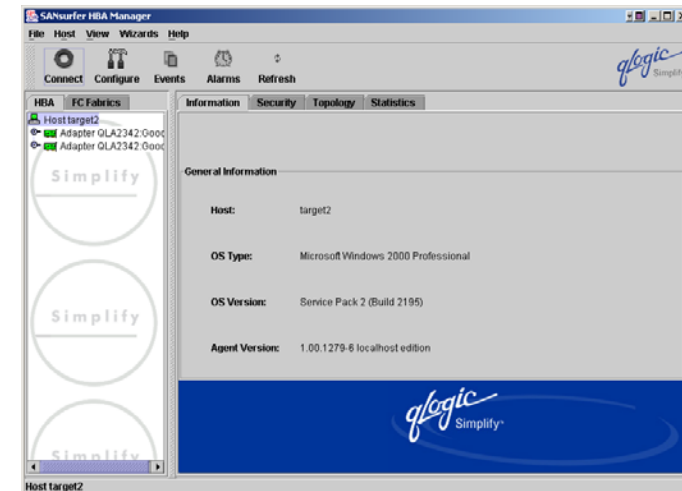


SANsurfer Manager – Simplifies



■ What Can It Do?

- Inventory Management
 - WWPN, Bios info, avail. targets...
- Configuration Control
- Multiple HBA Management
 - Driver and FW updates across multiple HBA's simultaneously
- Advanced End-to-End Diagnostics
 - Single card self test and/or Beaconsing
 - Loop back testing all the way back to target buffer testing
- Performance and Event Monitoring
 - FC event logs and diagnostics logs
- Failover and Persistent Binding Configuration Control



SANbox® 5200 Hardware Overview



16 Ports at 1Gb/2Gb

- Device and inter-switch (ISL) support
- SFP optical or copper (active) support

1U Chassis

- Integral power supply
- Front-to-rear or rear-to-front cooling configuration
- 9lbs and only 12" deep



Management Ports

- Ethernet port (10/100 RJ45)
- Serial port (RS-232)
- Recessed maintenance switch

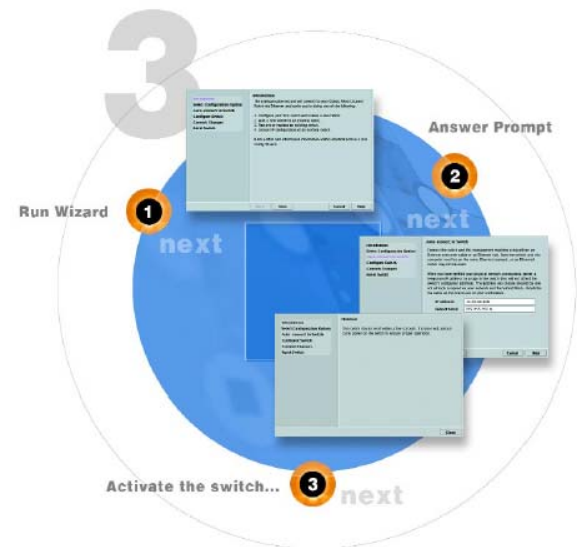
4 Ports at 10Gb

- Stacking up to 4 units
- Device and inter-switch (ISL) support
- XPAK optical or copper support

SANbox® 5200 Software Overview



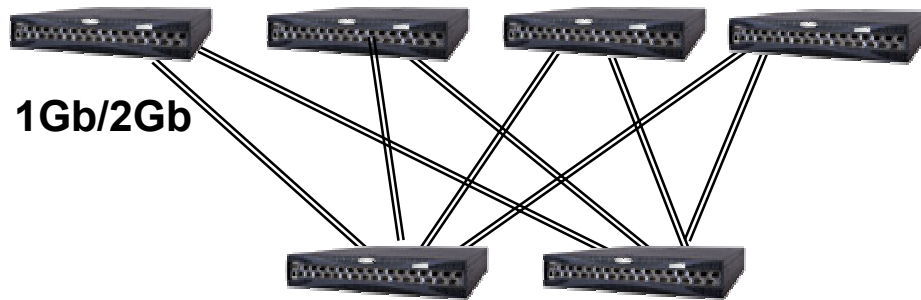
- ***SAME*** software features and code base from SANbox2 product family featuring:
 - NDLCAs for switch software upgrades with no data disruptions
 - I/O StreamGuard™ for error-free tape backups
 - FDMI support for simplified fabric management
 - All features supported with no need for additional licenses
- ***NEW*** Configuration Wizard tool
 - 3 simple steps to install and configure a switch!
- ***NEW*** Software Port Licensing
 - 4 port upgrades from 8 to 20 ports!



Simple & High Performance Stacking



- A single, 10Gb inter-switch link (ISL) eliminates the cost and complexity of trunking multiple 2Gb ports.
- Stack up to 64 ports (4 units) without giving up ports for devices.



Servers & Storage Devices: 64
Switches Required: 6
2Gb Device Ports used for ISLs: 32
ISL Bandwidth: 1Gb/2Gb



Servers & Storage Devices: 64
Switches Required: 4
2Gb Device Ports used for ISLs: 0
ISL Bandwidth: 10Gb

SANbox 5200 – Wizard Setup



64 Port Network

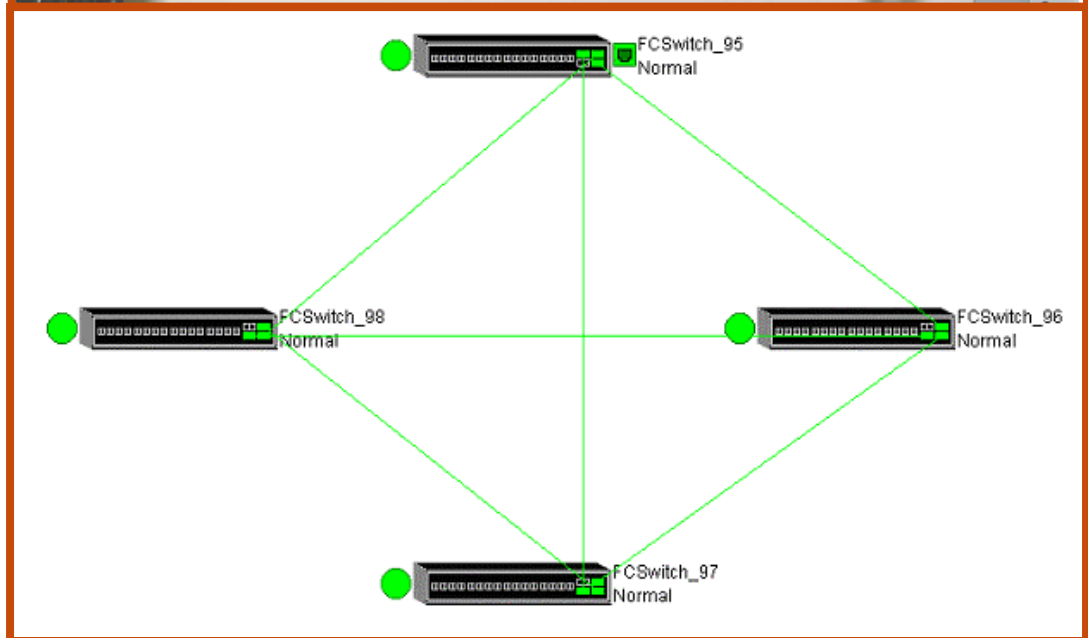
Total Setup Time:

10 minutes

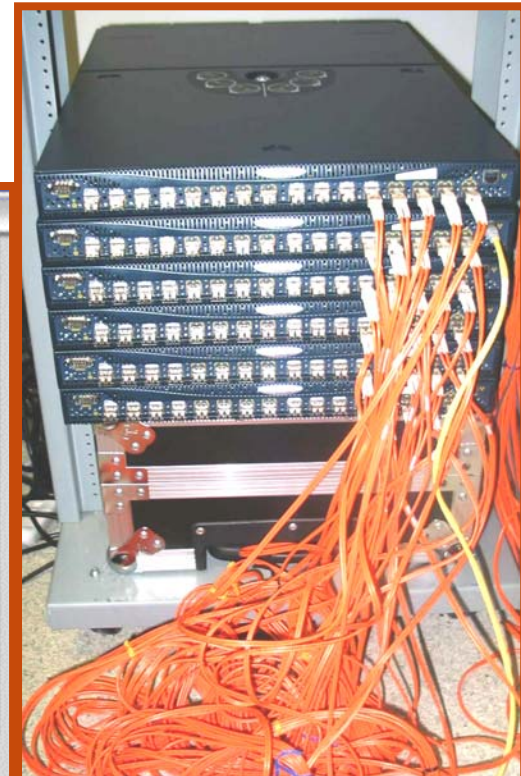
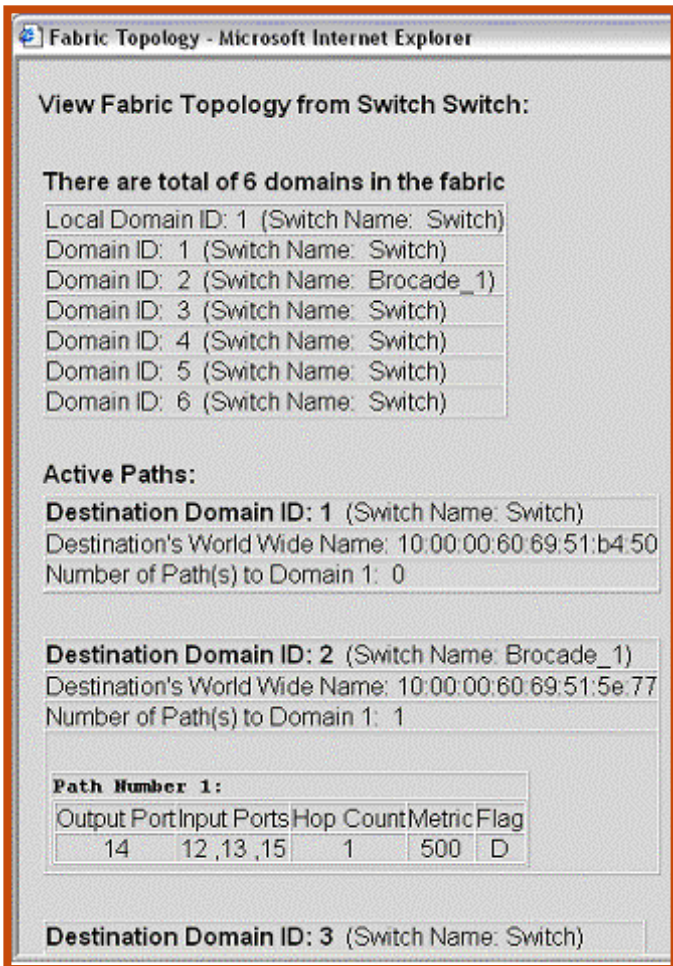
Configuration Steps: **5**

Stack Cables: **6**

- Configuration Wizard
- Stackable switch that does not consume 2Gb ports when scaling, uses 10Gb



Complex Device Management



64 Port Network
Expert Setup Time: 63 minutes
Configuration Steps: 19
ISL Cables: 30

SANbox 5200 - Pricing



- Price leader
 - Less than \$400 per port for the 8-port configuration
- Pay as you grow
- No need for additional licenses

SANbox 5200 Ordering Options

SB5200-08A	SANbox 5200 product with (8) 2-Gbit ports enabled.
SB5200-12A	SANbox 5200 product with (12) 2-Gbit ports enabled.
SB5200-16A	SANbox 5200 product with (16) 2-Gbit ports enabled.
SB5200-20A	SANbox 5200 product with (20) ports enabled (16 2-Gbit ports and 4 10-Gbit ports).

Product Compare

Sort this chart by clicking on an underlined attribute



Model QLogic SANbox 5200 Switch

Price \$3,069.01

Add To Cart Add to cart

Usually Ships 1-3 Days

Manufacturer Part Number SB5200-08A

CDW Part Number 582850

QLogic SANbox 5200 - switch

\$3,946.81

Add to cart

4-6 Days

SB5200-12A

583026

QLogic SANbox 5200 - switch

\$4,849.80

Add to cart

4-6 Days

SB5200-16A

583029

QLogic SANbox 5200 Switch

\$5,699.20

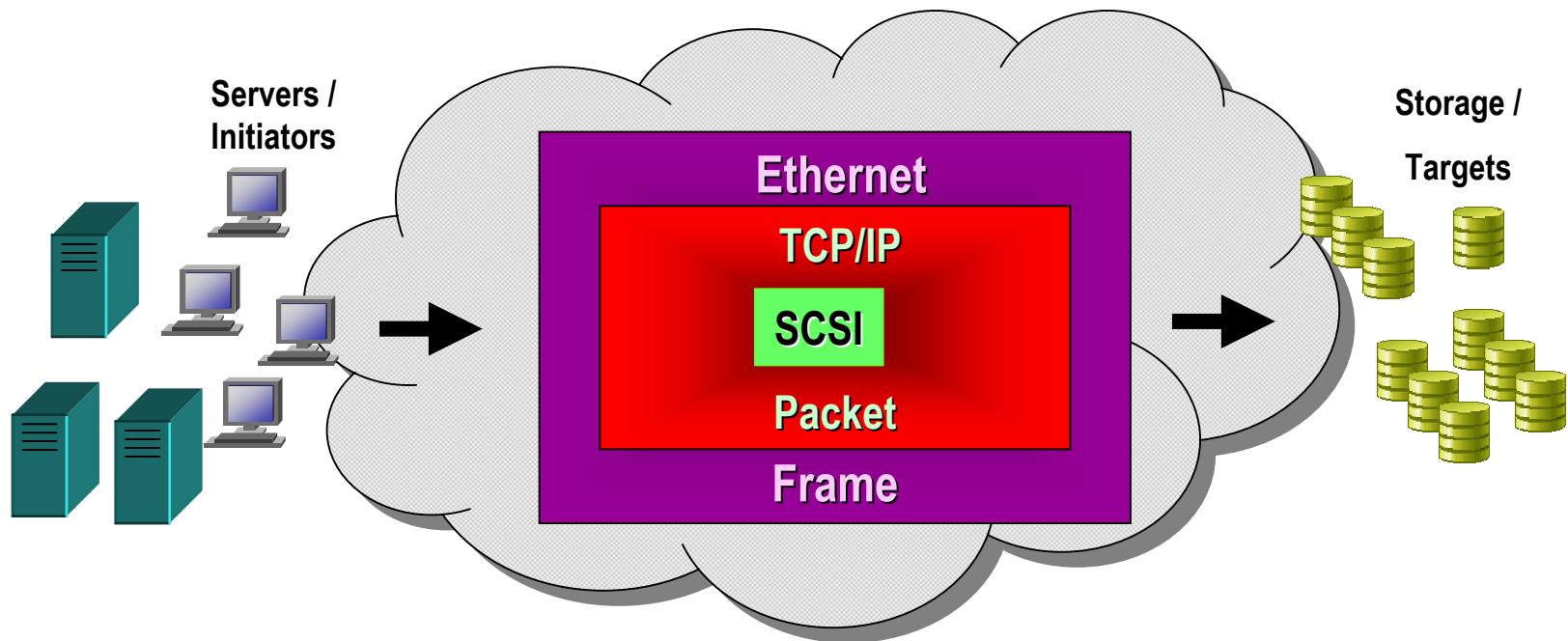
Add to cart

1-3 Days

SB5200-20A

583030

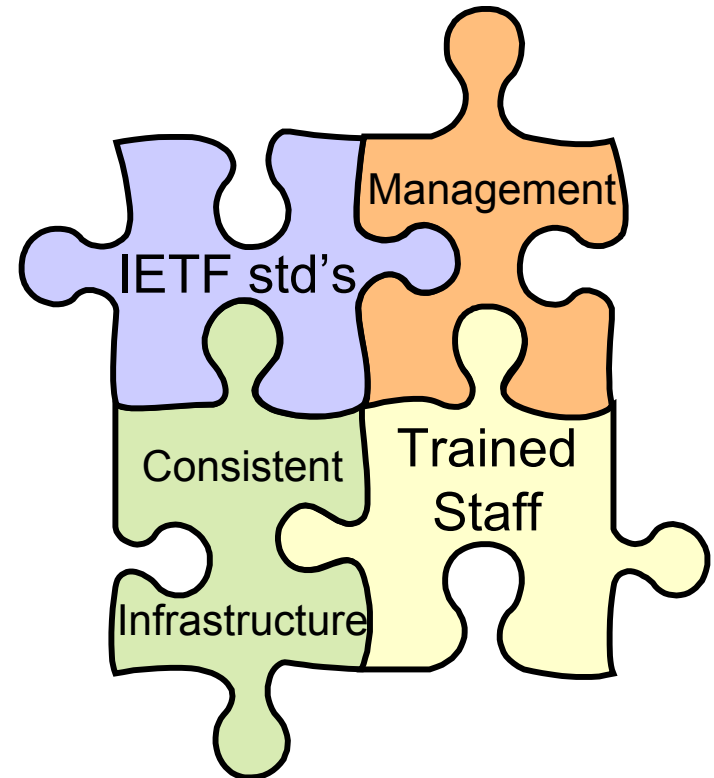
- **Internet Small Computer Systems Interface**
- **Block access (SCSI) to storage over standard TCP/IP networks**
- **Maps (encapsulates) SCSI to TCP/IP Protocol**
 - Similar to mapping SCSI over Fibre Channel Protocol



iSCSI Value Proposition Simplicity



- **Exploits existing knowledge base in IP**
 - IP is the data networking technology
 - Ethernet knowledgeable technicians are plentiful (relative to FC)
 - Leverage existing network management tools (SNMP, etc.)
- **Grow existing infrastructure**
 - Leverage existing IP infrastructure
 - Exploits sophisticated switching infrastructure and management tools
 - Consistent protocol with WAN and LAN infrastructures
- **Interoperability will not be a problem**
 - IP Standards are mature
 - IP Networks virtually guarantee interoperability



- Broad support makes standardizing on QLogic possible
 - Benefits of common software and less spares to stock
- HP MSA pre-configured SAN bundles
 - One part number to order and discounts
- Movement towards lower cost Fibre Channel HBA's and switches
- One SAN management user interface through Windows Server 2003 VDS
- Powerful SAN management and Failover software at no additional cost to the user from QLogic
- Stackable switches with configuration wizards
- iSCSI value proposition

■ Sales Contacts

- Russ Logan – Texas
 - 512.310.1420
 - russell.logan@qlogic.com
- Doug Spangler – California
 - 949.389.6203
 - douglas.spangler@qlogic.com
- Dave Brancato – Texas
 - 281.378.1565
 - dave.brancato@qlogic.com

■ Marketing Contact

- Brian Scheulen – Texas
 - 281.378.1567
 - brian.scheulen@qlogic.com

■ SE Contacts

- Robert Gundersen - Texas
 - 208.890.0291
 - robert.gundersen@qlogic.com
- Jerry Tyner – California
 - 949.389.6473
 - jerry.tyner@qlogic.com
- Mike Geroche - Colorado
 - 970.481.6672
 - michael.geroche@qlogic.com



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