



HP B-Series Portfolio Embedded to Enterprise

Jim Zucchero

SE Manager HP Account Team

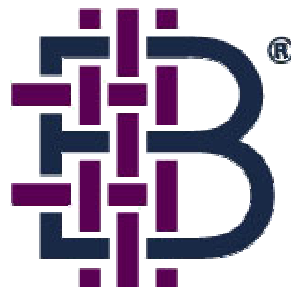
Brocade Communications Systems

SAN Market Leadership

- Who is the “Real” SAN market leader?
 - Brocade
 - McData
 - Cisco
 - Emulex (Vixel)
 - Qlogic (Anchor)
 - Broadcomm (Gadzoxx)

ANSWER: HP

- >1.5M B-Series Fibre Channel ports deployed
- >150,000 Fibre Channel switches deployed
- Largest base of SAN Expertise in the industry
 - HP has over 600 Engineers with Brocade Certifications
- Brocade has manufactured 3.8M ports
- Brocade has a 100% Channel Sales Model



HP & Brocade

“The” Industry’s SAN Leading Solution

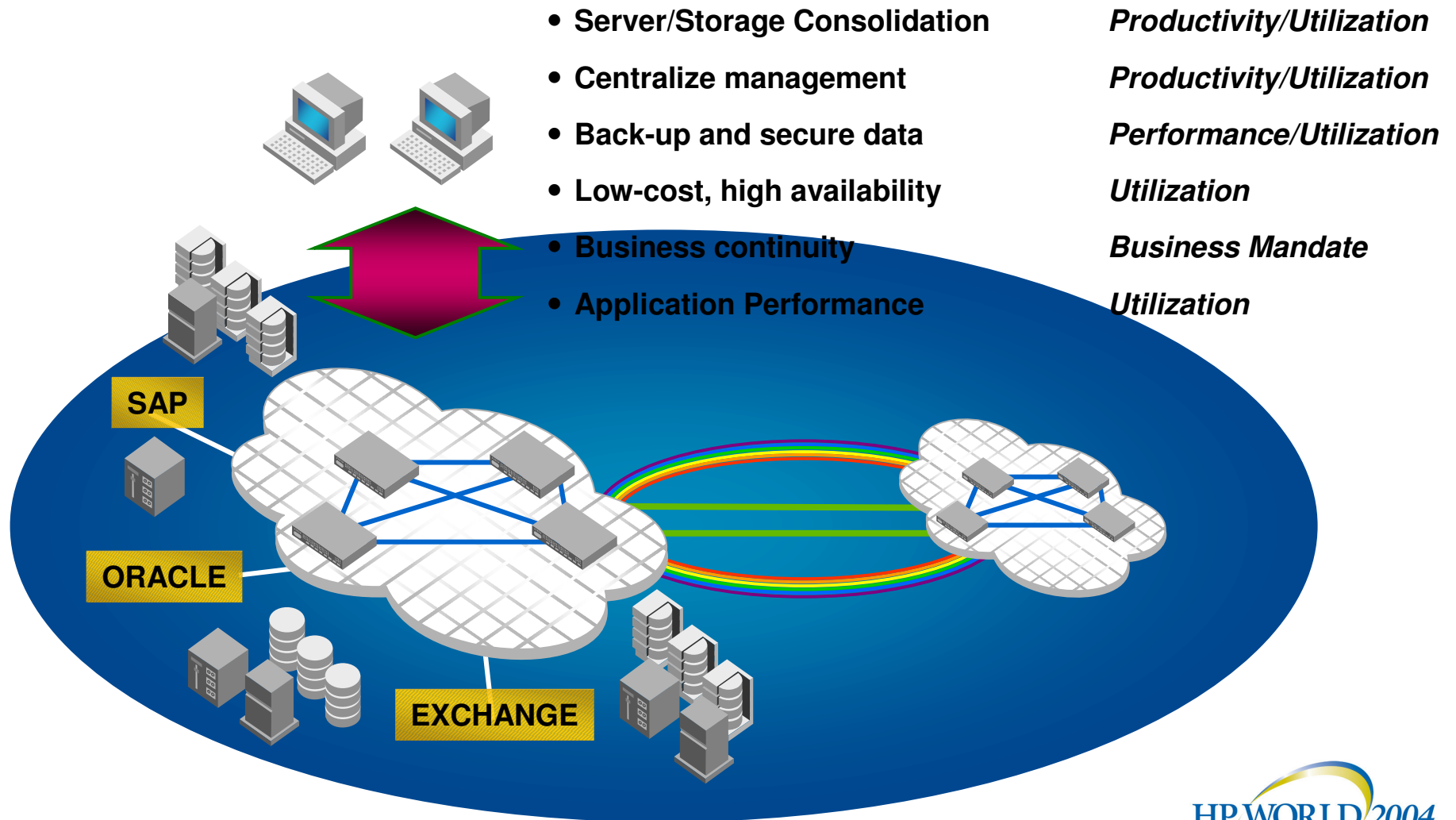
Experience

- HP & Brocade have a 6+ year relationship
- HP is Brocade’s largest partner (Brocade has 20+ OEMs)
- HP B-Series has the #1 Market Share
- Largest SAN Fabric: >1200 Ports, 28 Switches

Services

- HP offers SAN Implementation Services for Brocade SFOS
- HP is a Brocade PQSP (Premier Qualified Support Partner)
- HP offers support for heterogeneous Brocade environments
 - SAN ES (SAN Environmental Support)
 - Mission Critical SAN ES is also available

Storage Area Networks Deliver on Business Requirements

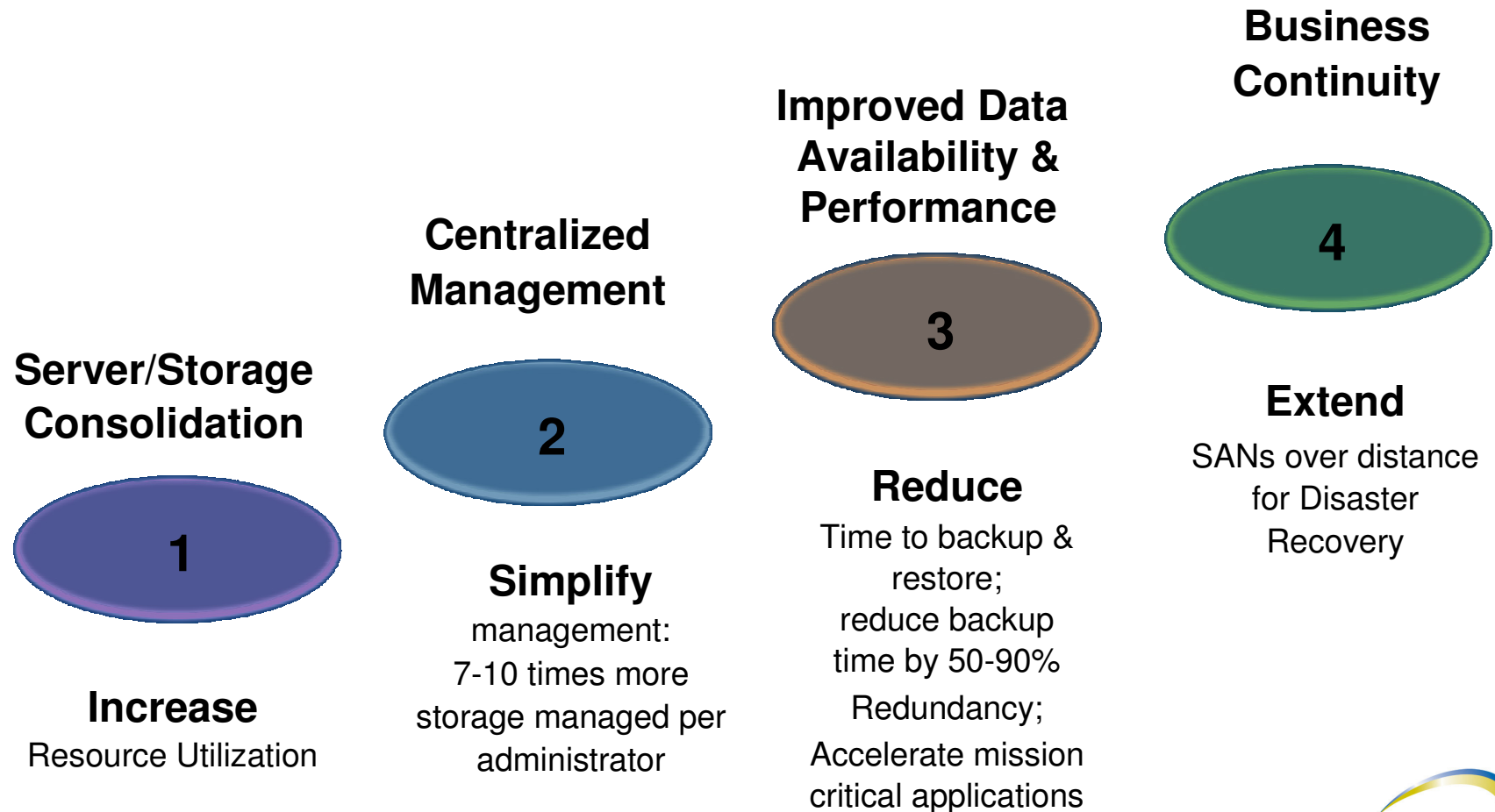




Storage Market Drivers

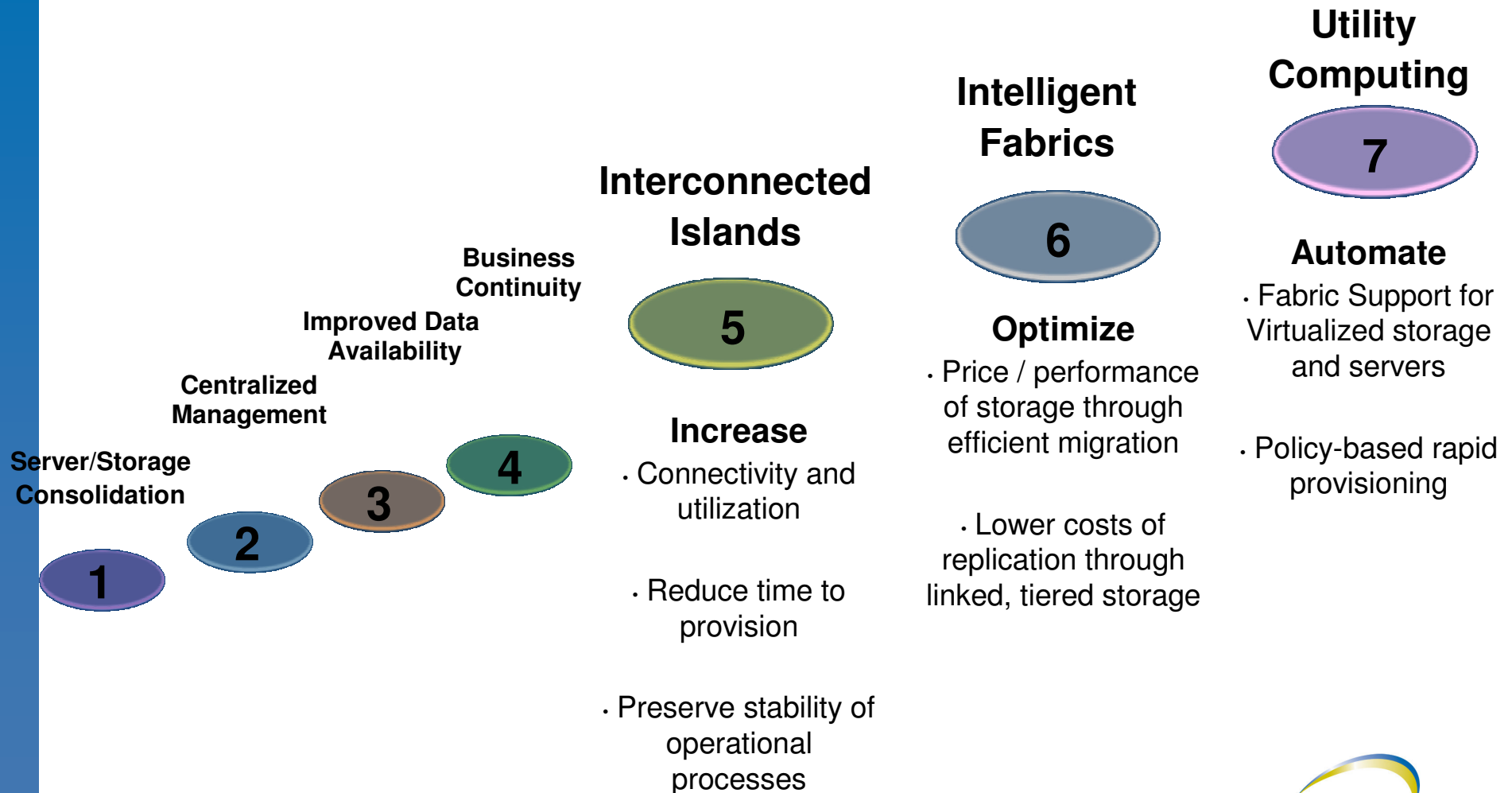
SAN Market Drivers Today.....

Save Money, Time, Reduce Operational Risk

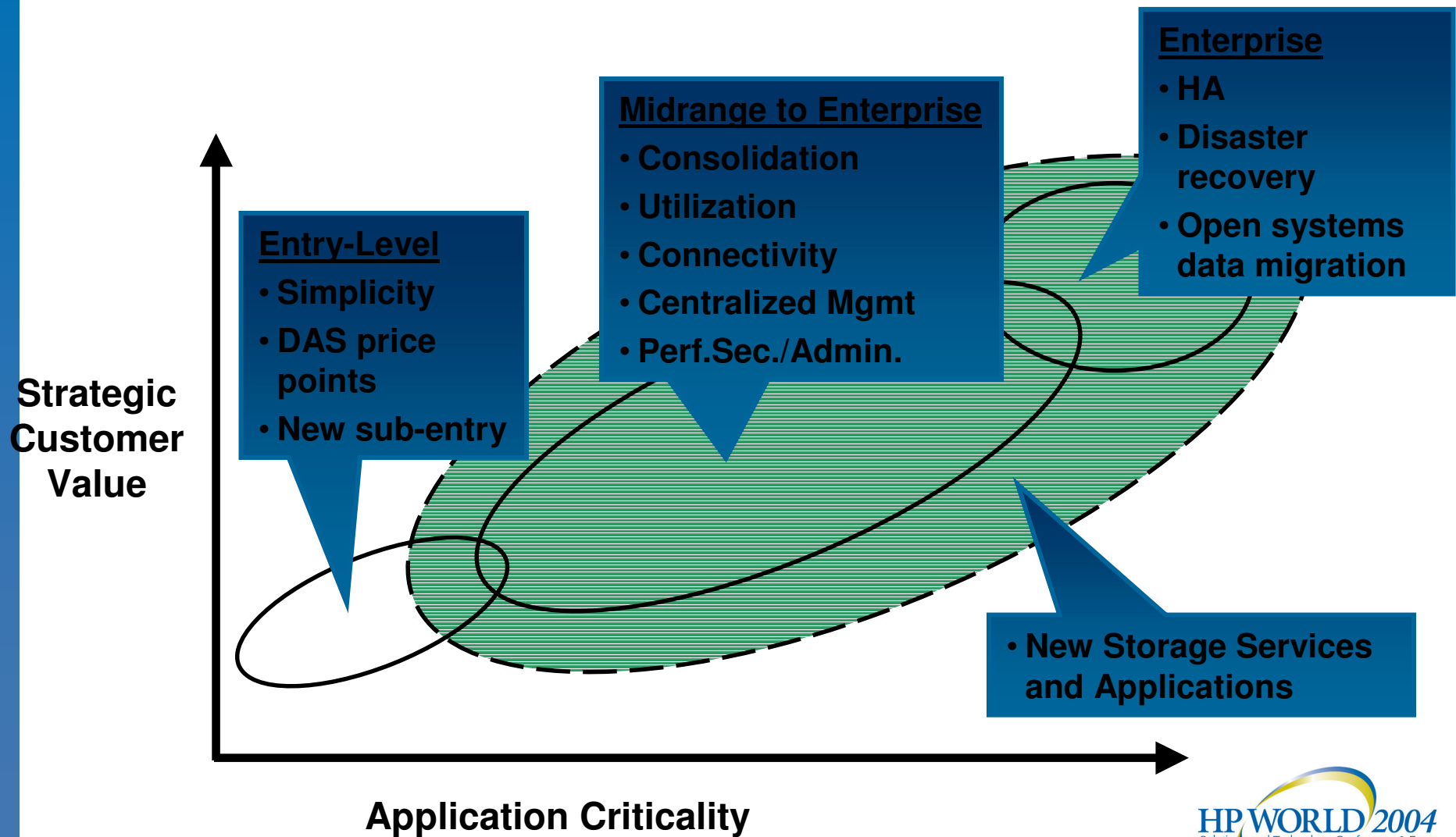


The Future of Networked Storage

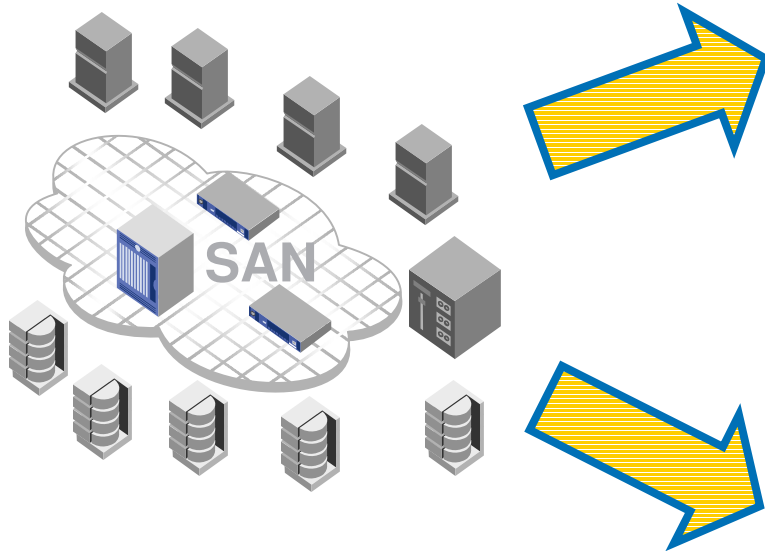
Extending the benefits; depth and breadth



FY 04 SAN Market Segmentation



SAN Innovation Will Evolve Along Two Dimensions



Fabric Intelligence

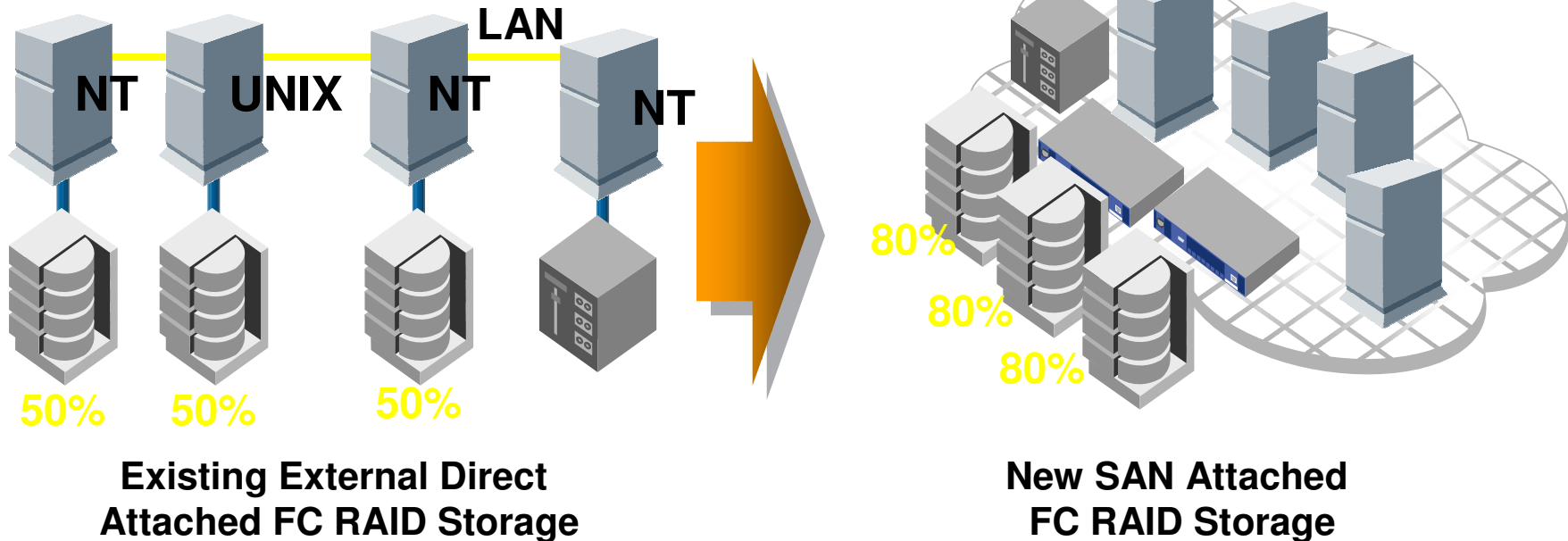
- Automated, policy-based data movement
- Automated, policy-based provisioning
- Automated, policy-based content management

Fabric Connectivity

- Higher link speeds
- Lower costs
- Investment Protection
- Multiprotocol
- Simplified management
- Increased security
- Greater fabric interoperability
- Routing

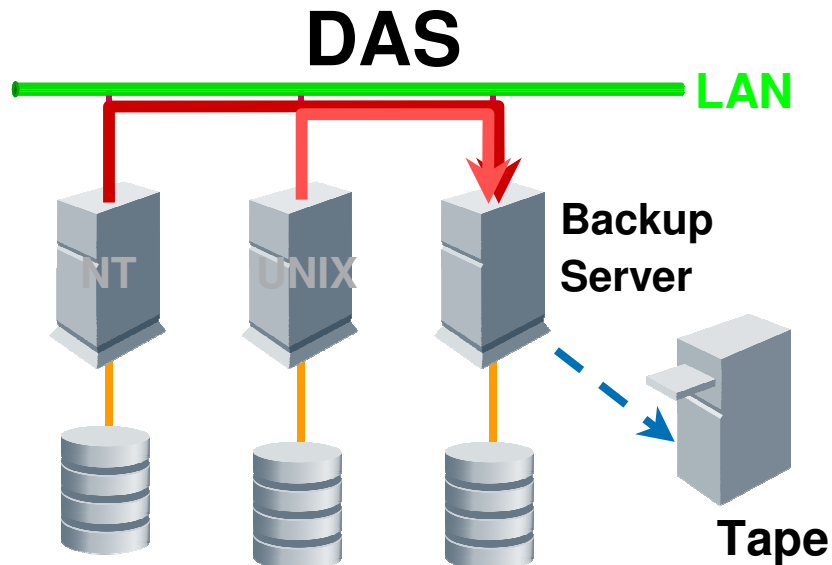
DAS to SAN Migration

Deployment Scenarios

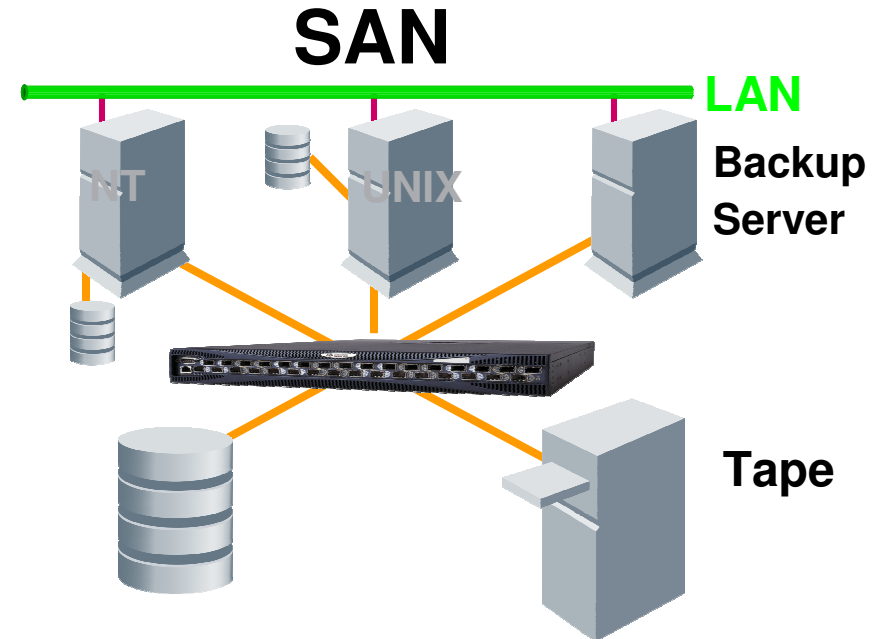


- Provide Higher Levels of Storage Utilization
- Dual redundant SAN fabrics provides no single point of failure
- Centralized Management Increases ROI

Improve Access of Enterprise Information



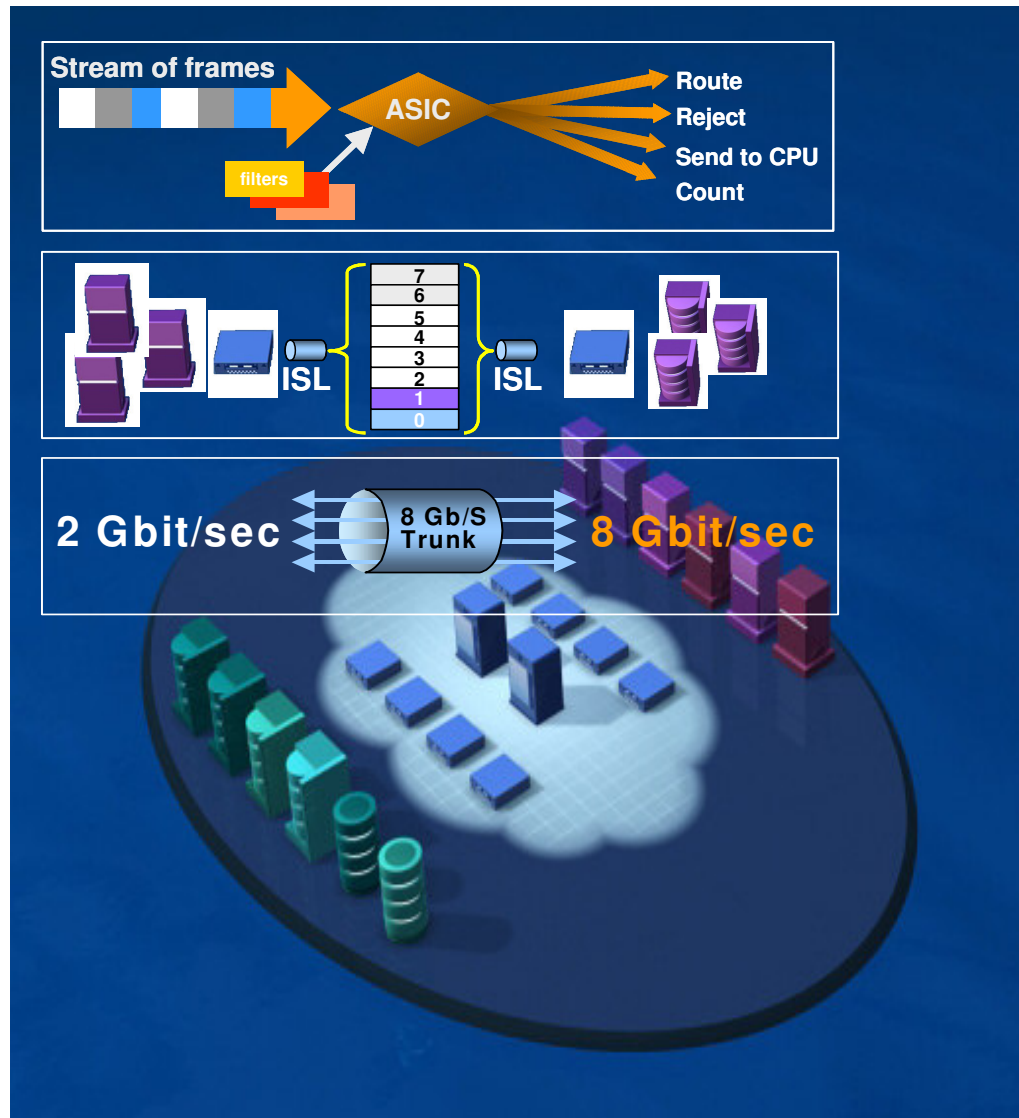
- Backup traffic clogs corporate LAN
- Backup/Restore time is lengthy
- Application and information not available during backup/restore



- Backups more efficient than LAN or DAS
- Less downtime for applications
- Reduced unscheduled downtime

Availability of information keeps your business running

Intelligent Platforms based on Brocade's 3rd Generation ASIC



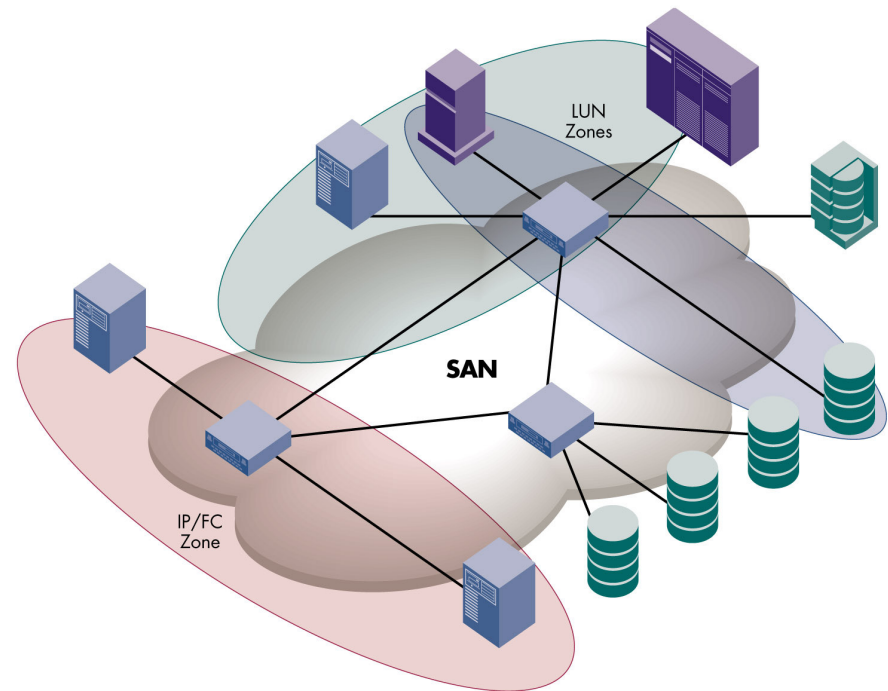
- Frame Filtering enables intelligent data routing, filtering, and measurements at wire speed
- Virtual channels provide congestion control
- Only the B-Series 8Gbit/sec ISL Trunking ensures in-order delivery and high bandwidth network links

Advanced Fabric Services

Advanced Zoning

WWN zoning supports intelligent storage access control:

- Hardware enforcement
- Simple administration
- Secure access control
- Safer, more secure SAN networks

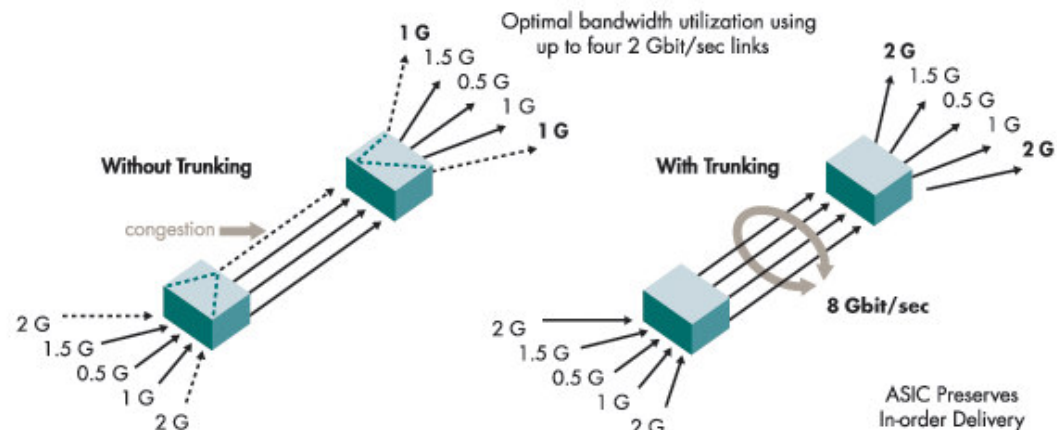


Administrators can organize the physical fabric into logical groups to prevent unauthorized access by devices outside the zone.

Advanced Fabric Services

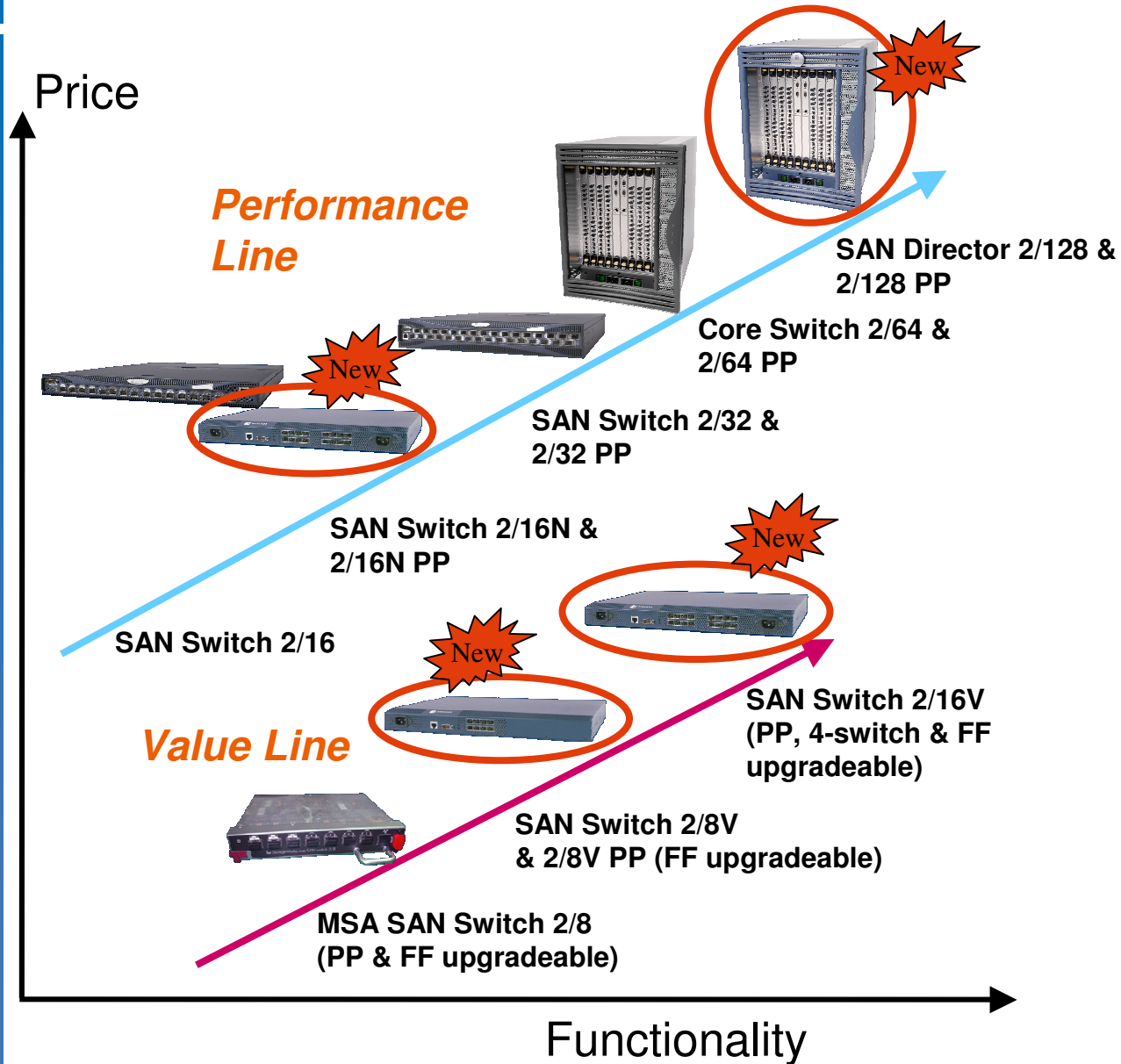
ISL Trunking

- ISL Trunking increases SAN network bandwidth, performance, and availability
- Up to four ISLs can form a single trunk with up to 8 Gbit/sec throughput
- Automatic load balancing
- Dynamic bandwidth sharing



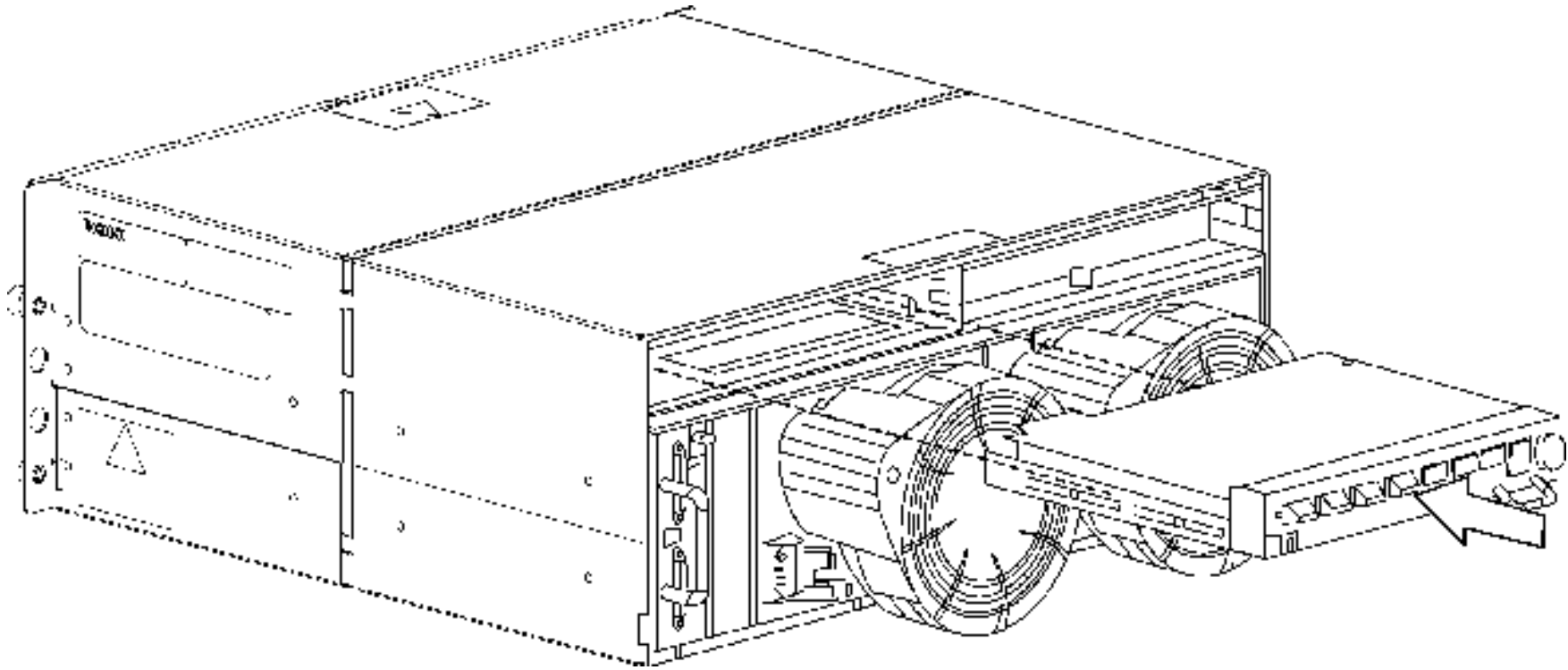
ISL Trunking improves network reliability and performance by handling failed links without rerouting traffic.

New B-series Product Portfolio



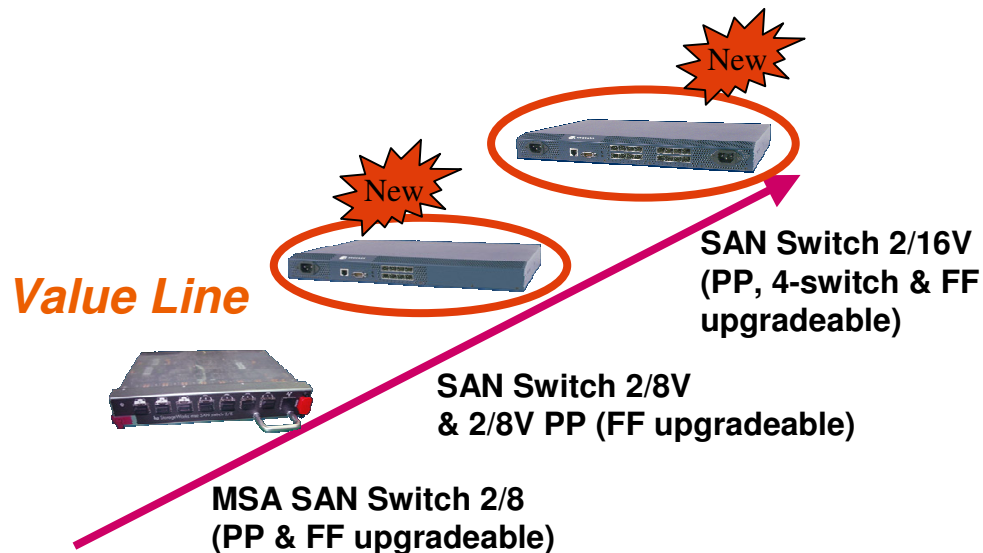
- Common functions from SMB to Enterprise
- Single FW code stream from 8 to 128 port (FOS 4.x)
- Increased functionality at lower price points for SMB Markets
- Increased port count, performance and RAS for Enterprise requirements
- Power pack available on all models
- Backward compatibility with all previous B-Series products

msa SAN Switch 2/8 installed in MSA1000



B-Series Value Line

Focusing on driving simple, affordable connectivity solutions for SMB Markets

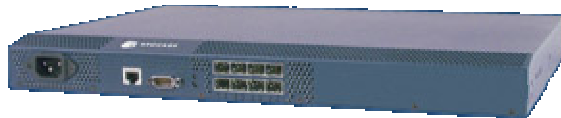


- Pre-configured, tested, and certified HP SAN solutions
- Complete value proposition with upgrade ability
- Basic mgmt tools included
 - WebTools
 - Hardware Enforced Zoning (B-Series exclusive)
- License Upgradeable
- Complete array of management options

Value Line - SAN Switch 2/8V & 2/16V

Feature Summary

SAN Switch 2/8V



SAN Switch 2/16V



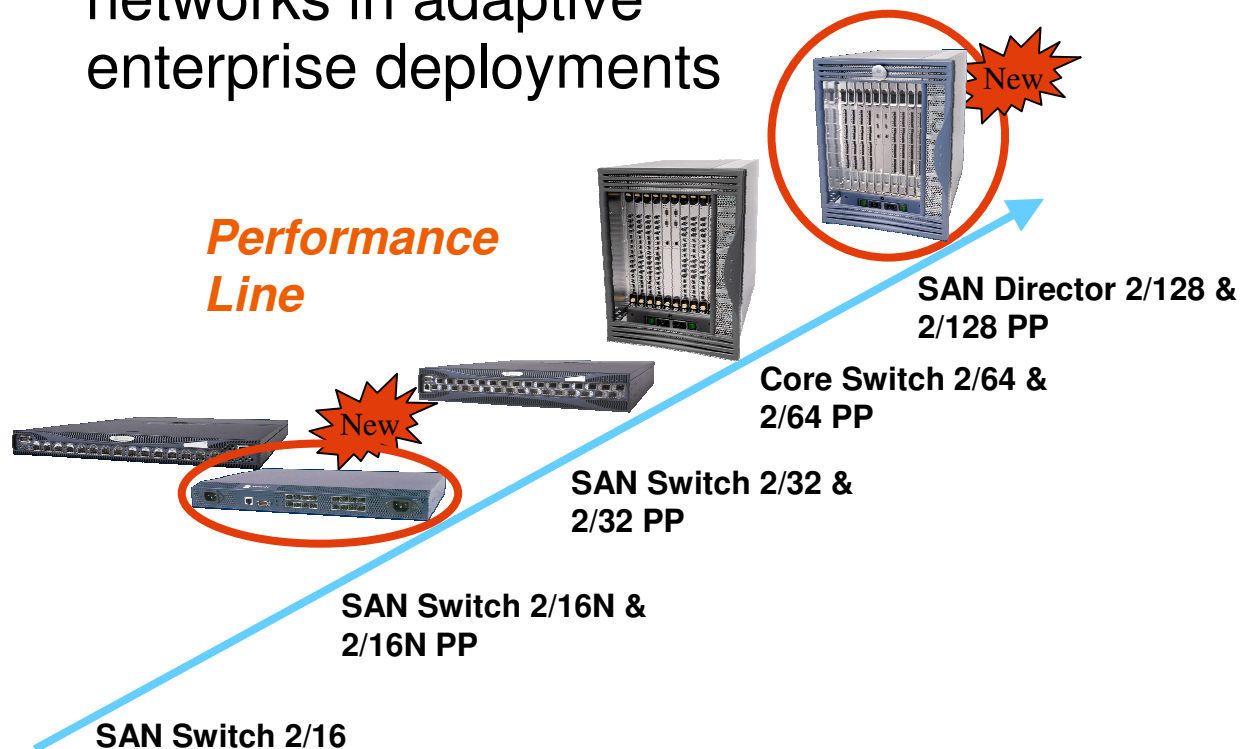
- 8 and 16 port switches, 2Gb/sec, 1U, auto-sensing, non-blocking switch
- Hot Code Activation – Customers with 24x7xForever requirements
- FabricOS 4.x
- Entire switch is FRU, removable SFPs
 - 8 port, single, fixed power supply & fixed fans
 - 16 port, dual, fixed power supply & fixed fans
- Industry leading 3rd Generation ASIC
- Product configurations:
 - Base: 2-switch limit Advanced WebTools & Hardware Enforced Zoning
 - Power Pack: Full fabric, includes full suite of management software
- Upgradeable: 4 switch limit (16 port only), Full Fabric, Power Pack, Security
- Fabric Manager

B-Series Value Line Advantages

B-Series Differentiators	Benefits
Hot code activation on new 8 and 16 port switches	<ul style="list-style-type: none">• Significantly reduces software installation time• Enables fast upgrades without disrupting existing fabric
Single code stream	<ul style="list-style-type: none">• Simplifies software maintenance and field upgrades across all supported B-Series family products
Industry's only hardware-enforced zoning based on port and World Wide Name (WWN)	<ul style="list-style-type: none">• Increases SAN fabric security and control• Enables data sharing across departments
Industry's only Intelligent Fabric Services Architecture	<ul style="list-style-type: none">• Simplifies the complexity of managing and administering storage environments
ISL Trunking – 8Gb/s	<ul style="list-style-type: none">• Increases SAN network bandwidth, performance, and availability
Robust API used by more than 60 leading application developers	<ul style="list-style-type: none">• Provides the ability to choose best-in-class storage management applications

B-Series Performance Line

Providing the building blocks enterprise customers need to build highly scalable, highly available storage area networks in adaptive enterprise deployments



- Pre-configured, tested, and certified HP SAN solutions
- New SAN Director with improved performance for data center requirements
- 128 port single domain
- Simplicity and consistency of a single firmware across the entire B-series portfolio
- Investment protection
- Complete array of management options

SAN Switch 2/16N Feature Summary



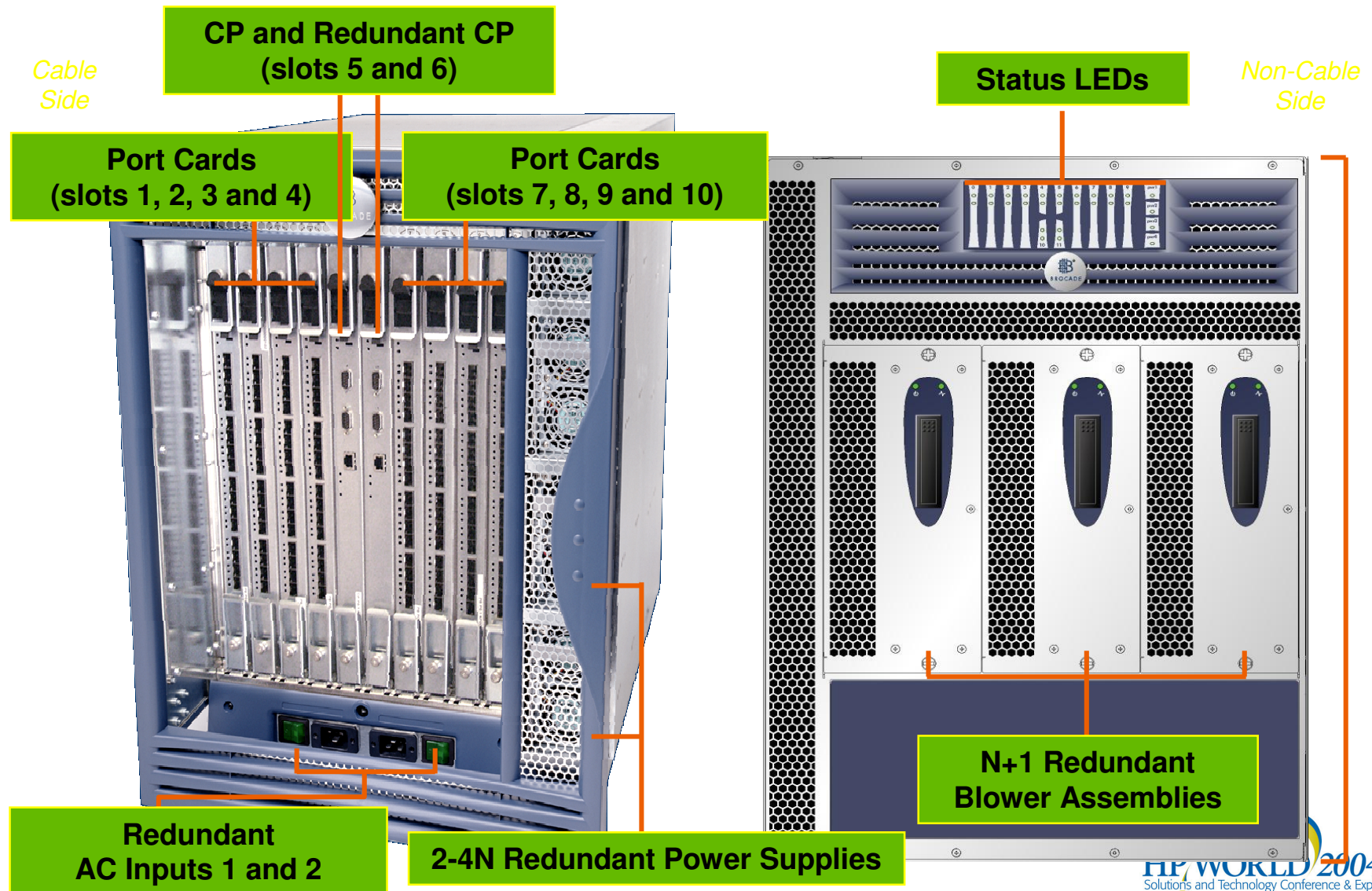
- 16port switch, 2Gb/sec, 1U, auto-sensing, non-blocking switch
- Fabric OS 4.x
- Entire switch is FRU, removable SFPs
 - 16 port, dual, fixed power supply & fixed fans
- Industry leading 3rd Generation ASIC
- Product configurations:
 - Base: Full fabric, Hot Code Activation, Advanced WebTools & Hardware enforced Zoning
 - Power Pack: Full fabric, includes full suite of management software
- Fully upgradeable: Power Pack, Fabric Manager, Secure FabricOS

HP B-Series Second Generation Director *SAN Director 2/128*

- **HP second generation Director**
 - Builds on success generated by the HP Core 2/64
 - Approaching 1000 HP Core 2/64 deployed
- **Increased SCALABILITY - extends product line**
 - 128 port single domain director for large port count SANs with fewer domains
- **Industry leading PERFORMANCE**
 - Non blocking performance with faster fabric services
- **“Five-nines” AVAILABILITY**
 - Increased MTBF over the Core Switch 2/64
- **Improved RAS**
- **INVESTMENT PROTECTION**
 - Multi-protocol support: FICON
 - Compatible with HP install base
 - Extended distance support to 100Km @2Gb (planned follow-on release)



SAN Director 2/128 H/W Overview



B-Series 2/64 & 2/128 Director-Class RAS

- Proven 99.999% availability
- Redundant, hot swappable components with no single point of failure
- Non-Disruptive firmware upgrades
- Stateful non-disruptive Control Processor failover
- Redundant Flash stores two FW images for graceful downgrades
- Extensive diagnostics and status reporting

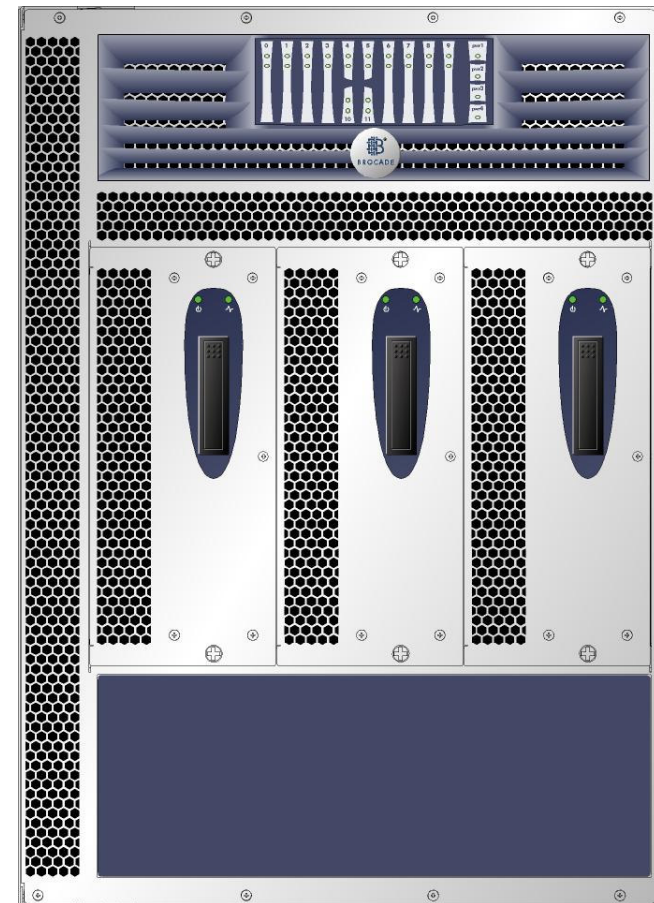


B-Series SAN Director 2/128

RAS Enhancements

(Reliability, Availability, Serviceability)

- Reliability
 - Predicted MTBF increased by 25%
- Availability
 - Five nines
- Serviceability
 - Enhanced diagnostics
 - New CP LEDs
 - Ejectors
 - Leverage 2/64 service techniques



B-Series SAN Director 2/128

Enhanced Value Proposition

- High Availability features



- “Five nines” Availability
 - Hot swap FRUs
 - Redundant CPs with stateful failover
 - Hot code activation
 - 25% MTBF improvement over SW12k

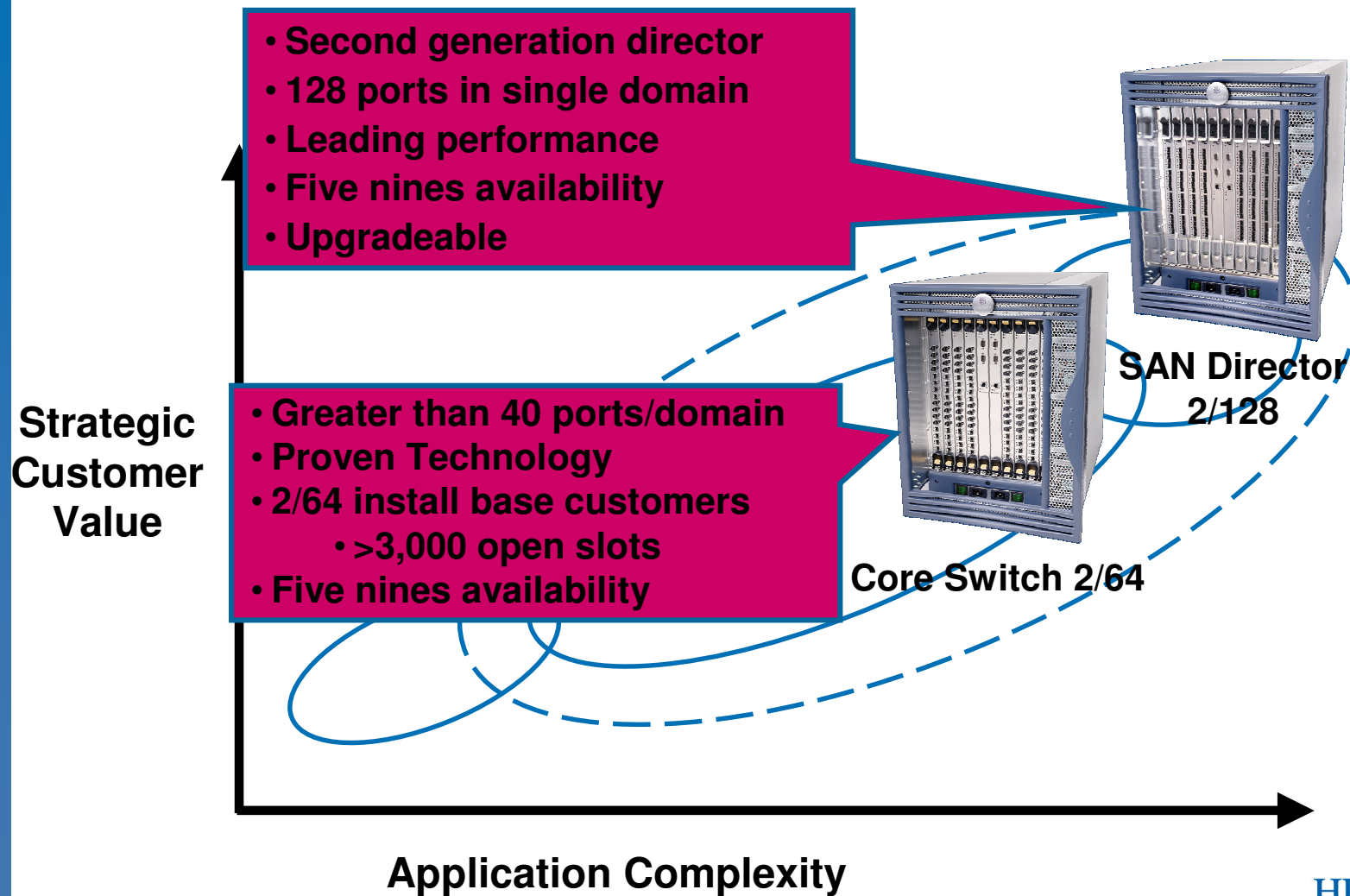
- High Performance



- Faster processor to accelerate fabric services
- No congestion
 - 1:1 subscription ratio

B-Series Director Family

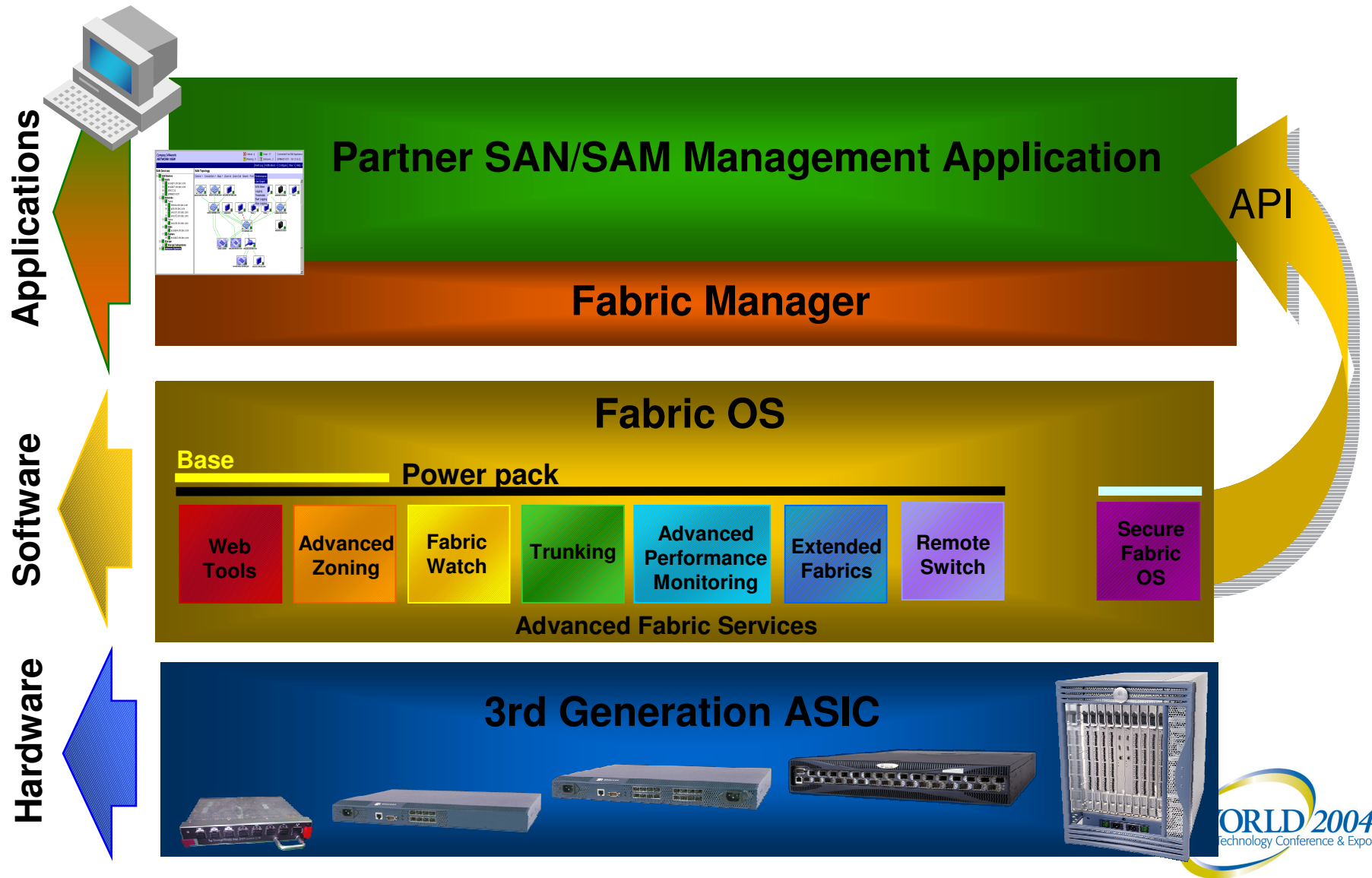
2 Products for Greater Segment Coverage



B-Series Value Proposition

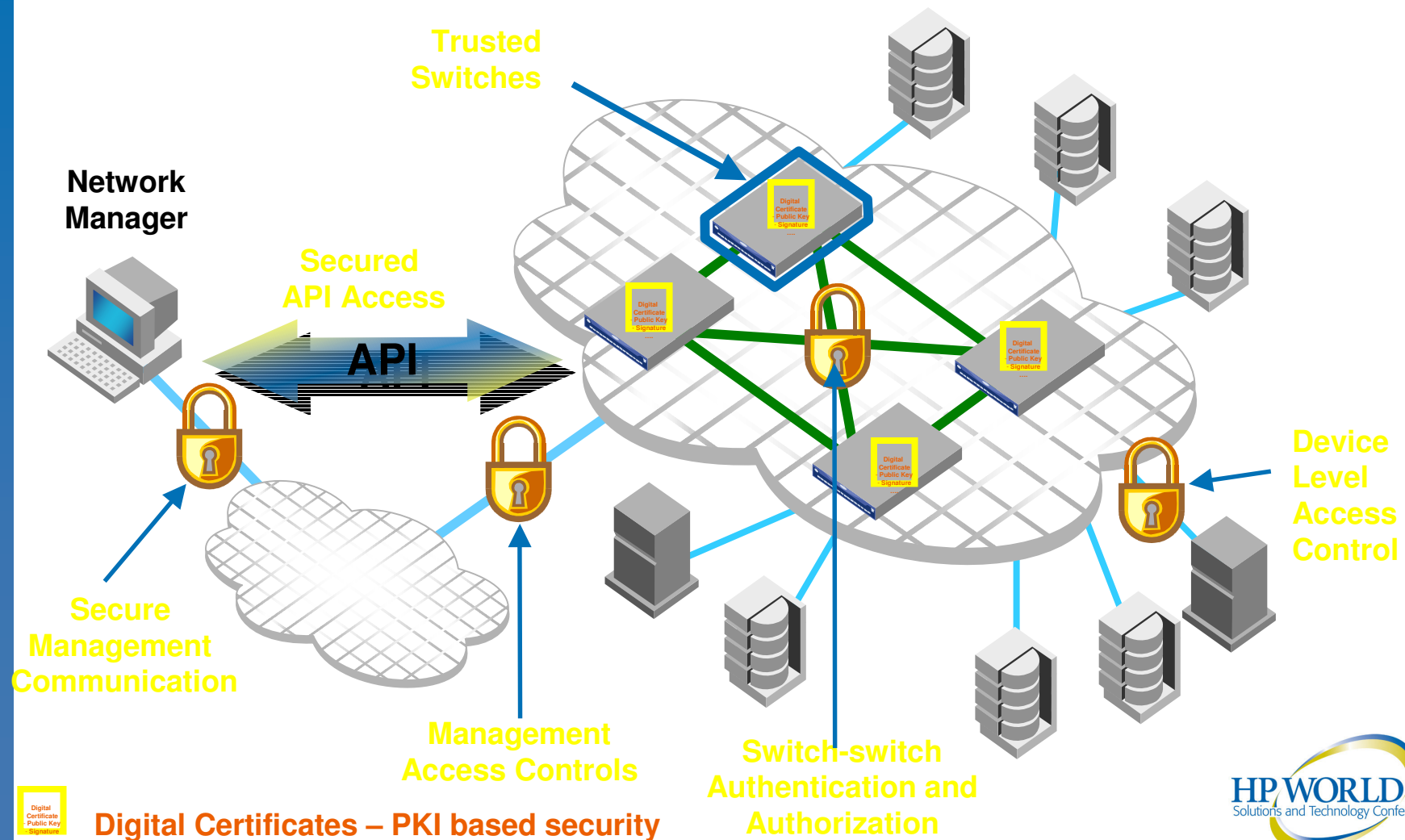
- Industry-leading SAN solution set
 - Hardware enforced zoning
 - Trunking
 - Advanced Performance Monitoring
 - Health monitoring
 - SAN extension
 - Secure Fabric OS
- OpenView SAM integration
 - Brocade API integration
 - WebTools (launchable from within OpenView SAM)
 - Fabric Manager (launchable from within OpenView SAM)
- Largest customer installed base
 - HP = 1.5 Million ports
 - Total Brocade = 3.8 Million ports

B-Series Value Proposition



Secure Fabric OS

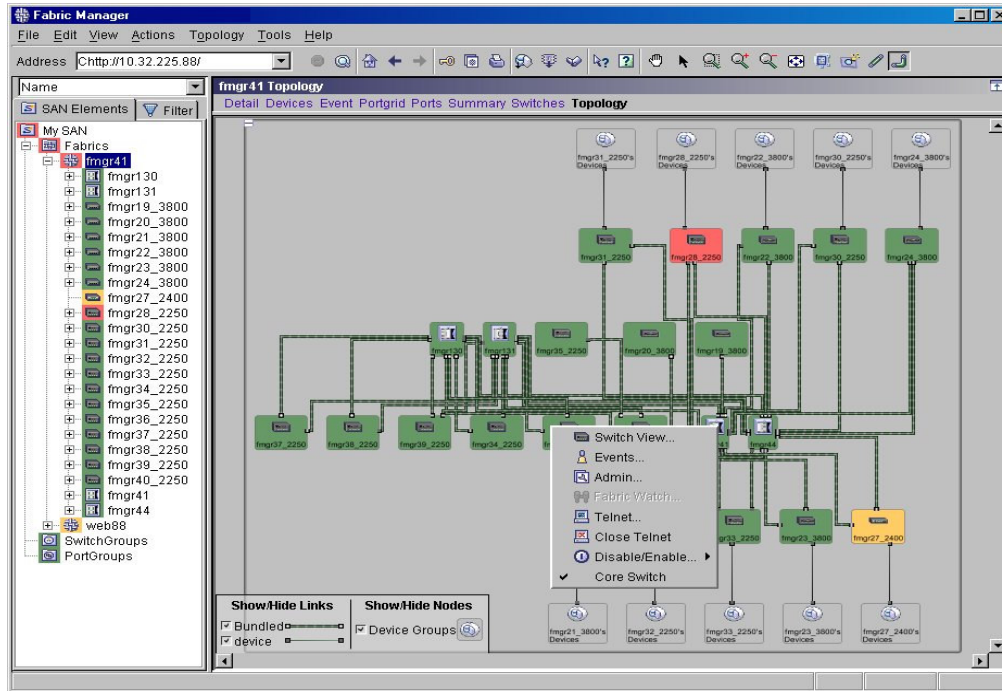
Securing The SAN infrastructure



Fabric Manager Value Proposition

- Single point of management for Brocade SANs
- Discovery and aggregation of management data
- Point-and-click implementation for complex tasks
 - Share devices between fabrics using FCR
- Automation of repetitive, difficult and broad tasks
 - Firmware download to all switches in a fabric
- Automated monitoring of fabrics for user defined changes
- Brocade won a **Computerworld 2003 Innovative Technology Award** for Fabric Manager
 - End-user nominated (45th Space Wing of the U.S. Air Force)

Fabric Manager Description



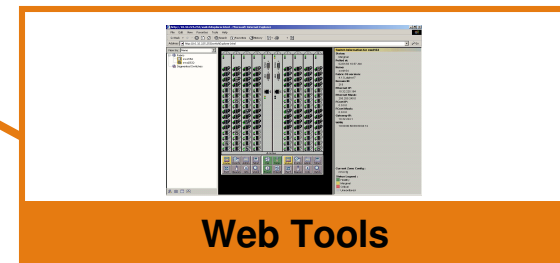
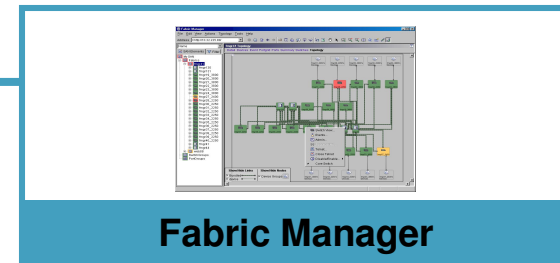
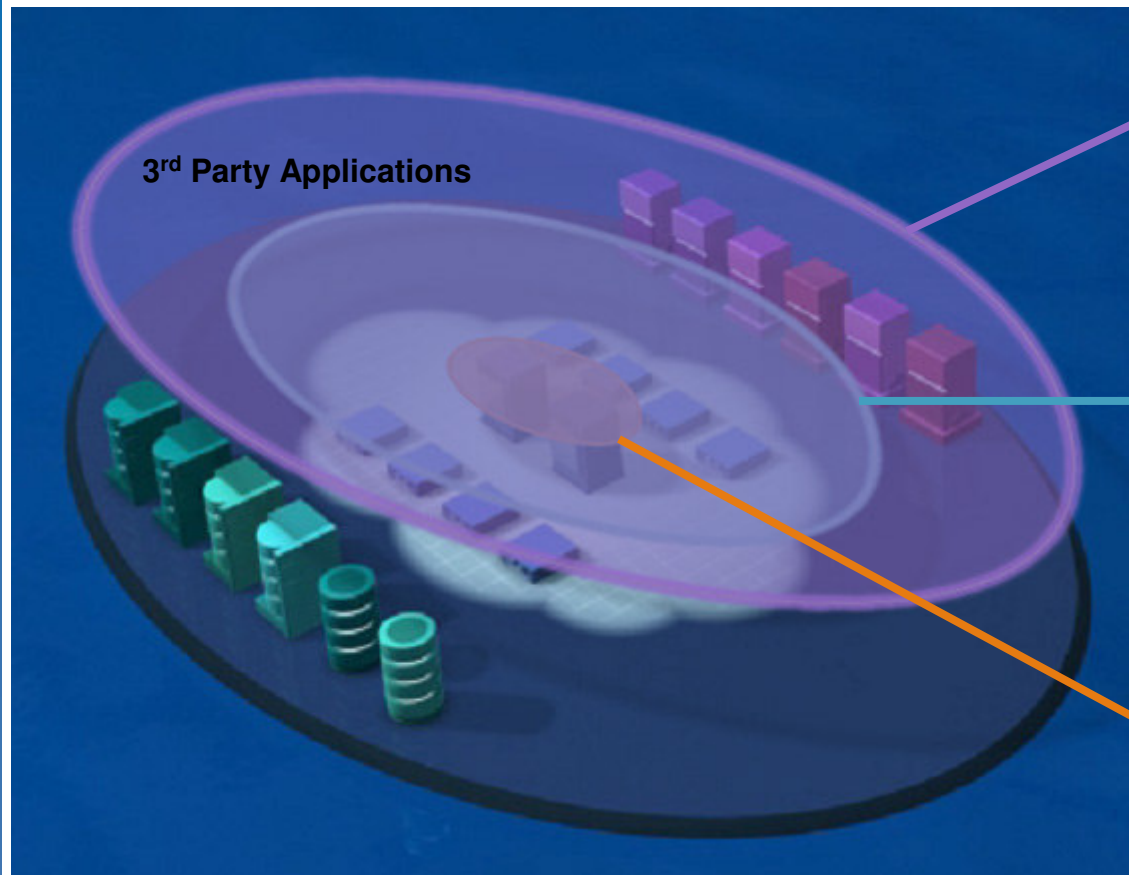
Function

- Manage large groups of Brocade switches and multiple fabrics
- Logical switch and port grouping
- Multiple views (Explorer Tree and Visual Icon Topology)
- Aggregated reporting
- APM (include features here)

Customer Benefit

- Host-based for centralized management
- Simplifies administrative tasks such as change management, firmware downloads, and configuration management
- Reduces cost of ownership by increasing productivity
- Lowers down time with real-time health monitoring, alert management, and call home support

Brocade SAN Management Strategy



What's New: Fabric Manager 4.1.1 Enhancements

- **New Hardware Platform Support**

- SilkWorm 3250 & 3850, 24000,

SilkWorm 3250

SilkWorm 3850

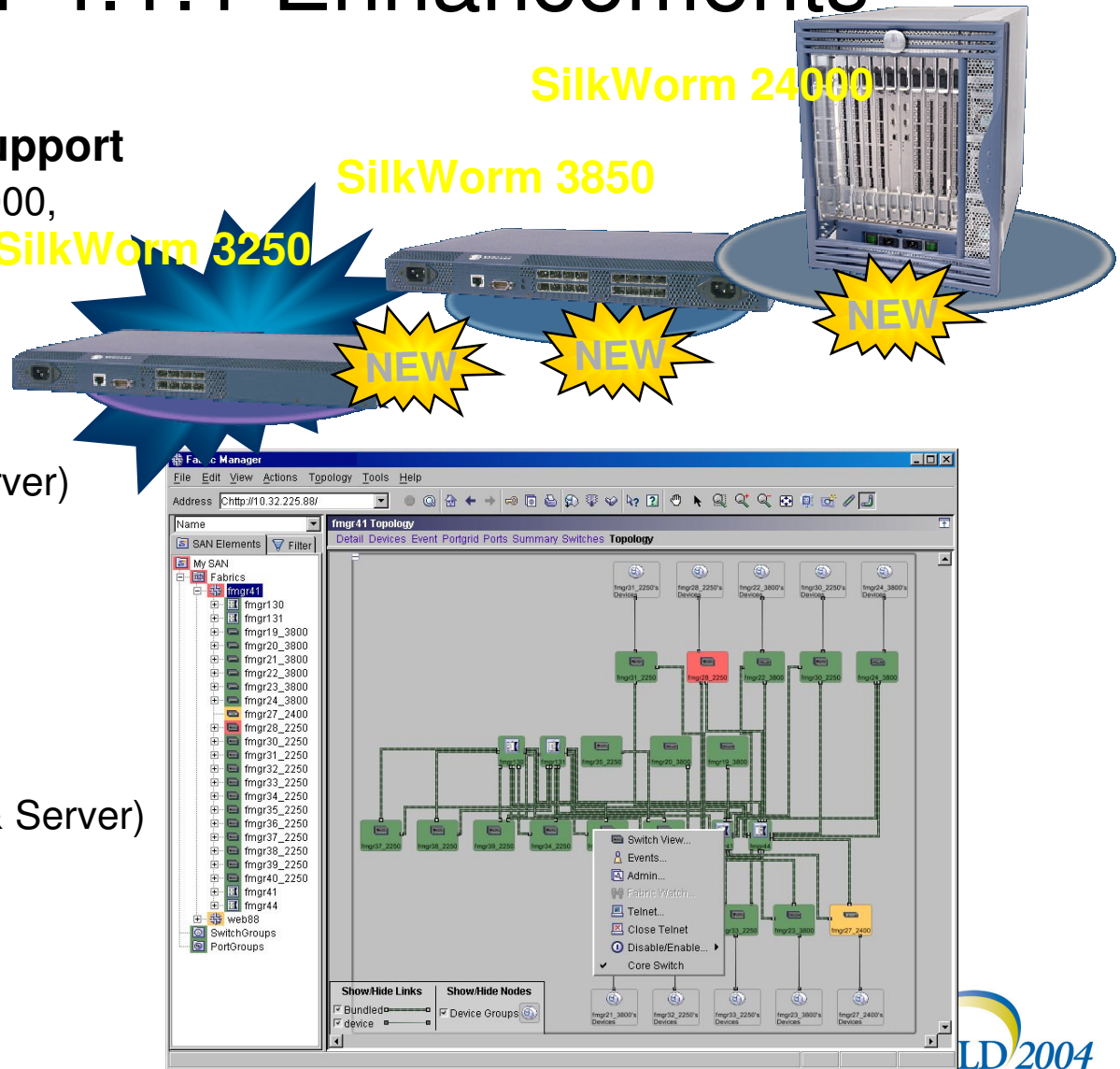
SilkWorm 24000

- **New OS Support**

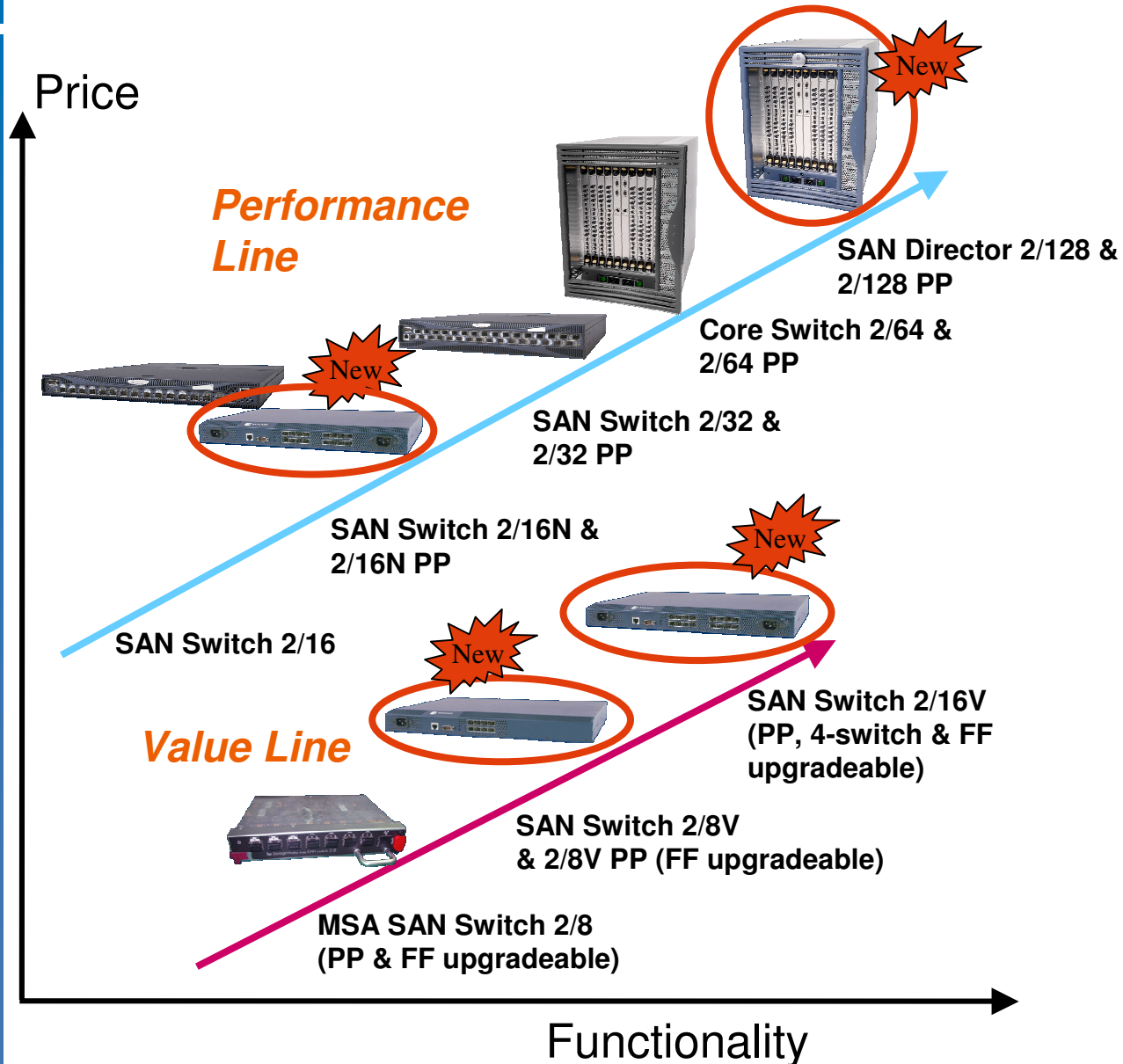
- Solaris 9 (Client & Server)
- Windows 2003 (Client & Server)

- **Existing OS support**

- Solaris 7 (Client only)
- Solaris 8 (Client & Server)
- Windows 2000, XP (Client & Server)



New B-series Product Portfolio



- Common functions from SMB to Enterprise
- Single FW code stream from 8 to 128 port (FOS 4.x)
- Increased functionality at lower price points for SMB Markets
- Increased port count, performance and RAS for Enterprise requirements
- Power pack available on all models
- Backward compatibility with all previous B-Series products



Brocade SilkWorm Multiprotocol Router

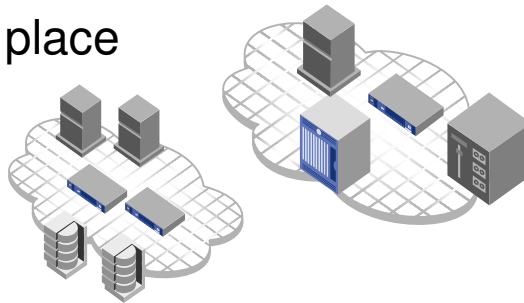
Storage Connectivity Challenges

TODAY'S CHALLENGES

Isolated SAN Islands

- Capacity in the wrong place

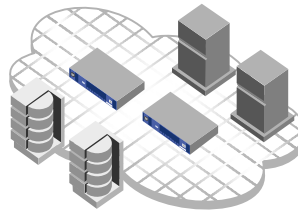
Cable management complexity



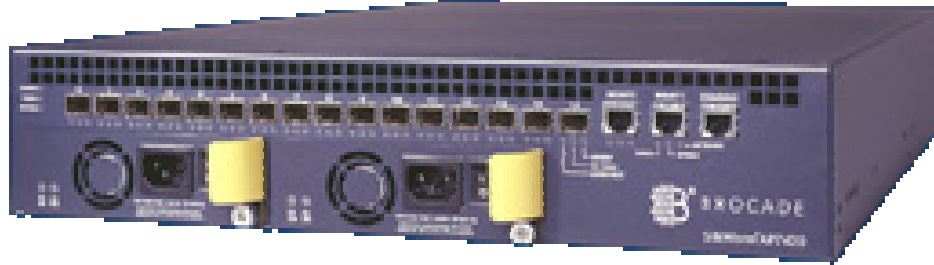
Dedicated HBAs for Tape

Multi-site fabrics

Stranded servers on Ethernet



Brocade SilkWorm Multiprotocol Router



Top-Level Specifications

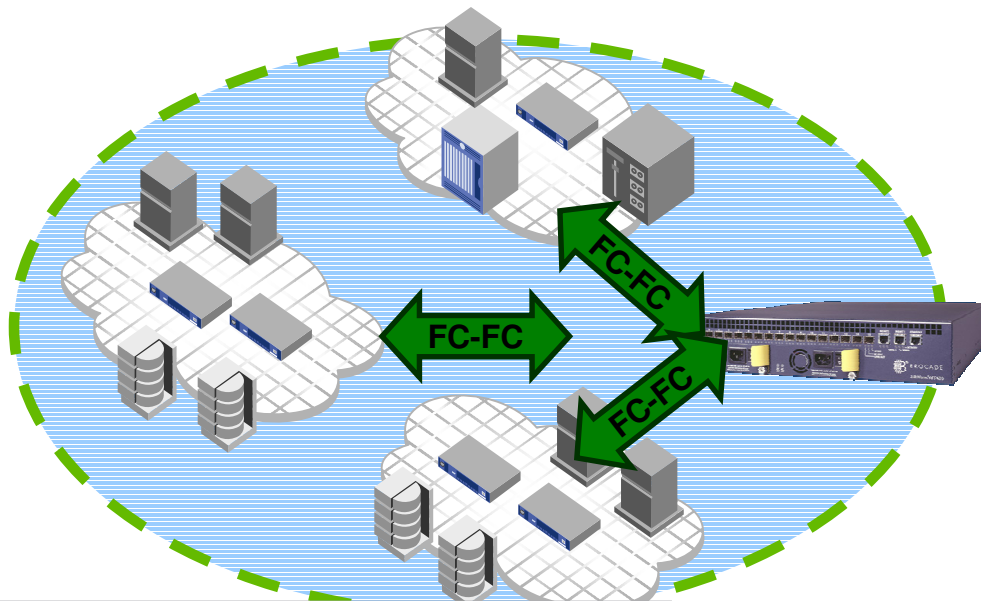
- Multiprotocol (1-2 Gbit/sec FC, IP) *at each port*
- 16 ports, software selectable
- 1 ASIC per port, processing scales linearly
- Line rate applications processing
- Same hardware that will host storage applications
- Seamless integration with more than 60,000 existing Brocade fabrics

Brocade SilkWorm Multiprotocol Router

- 16-Port SilkWorm Multiprotocol Router
 - 8-Port base configuration with 16-port upgrade via optional software key
- Key Features
 - 16 Multi-Protocol Ports
 - 1/2Gbps Auto-sensing Fibre Channel or 1Gbps Ethernet
 - XPath Architecture with per-port processing and control path
 - Comprehensive FOS interoperability with 60,000 Brocade fabrics
- Supported SFP's include SWL, LWL, ELWL
- Management via CLI, API, FM
- Dual/redundant Ethernet ports
- FRU's
 - Dual-redundant Hot-Swap Fan Trays
 - Dual-redundant Hot-Swap power supplies
 - SFP's
 - *No mother-board FRU*



Brocade SilkWorm Multiprotocol Router FC to FC Routing Technical Benefits

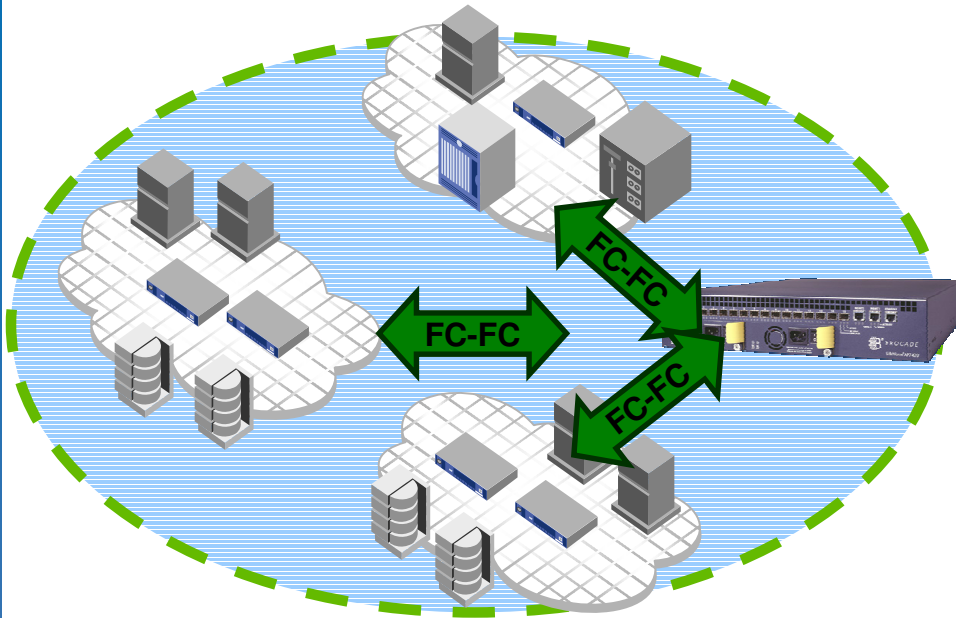


FC-to-FC Routing Service

- Logically connect SAN islands
- Enable shared resource access across multiple fabrics without merging them
- Maintain administration and fault isolation of separately managed fabrics

- Shares resources *between* SAN fabrics w/o merging the fabrics
- Enable phased change management
- Increase individual SAN fabric availability and reliability
- Increase overall Meta-SAN fabric scalability
- Ease individual SAN fabric serviceability

Brocade SilkWorm Multiprotocol Router FC to FC Routing Business Benefits



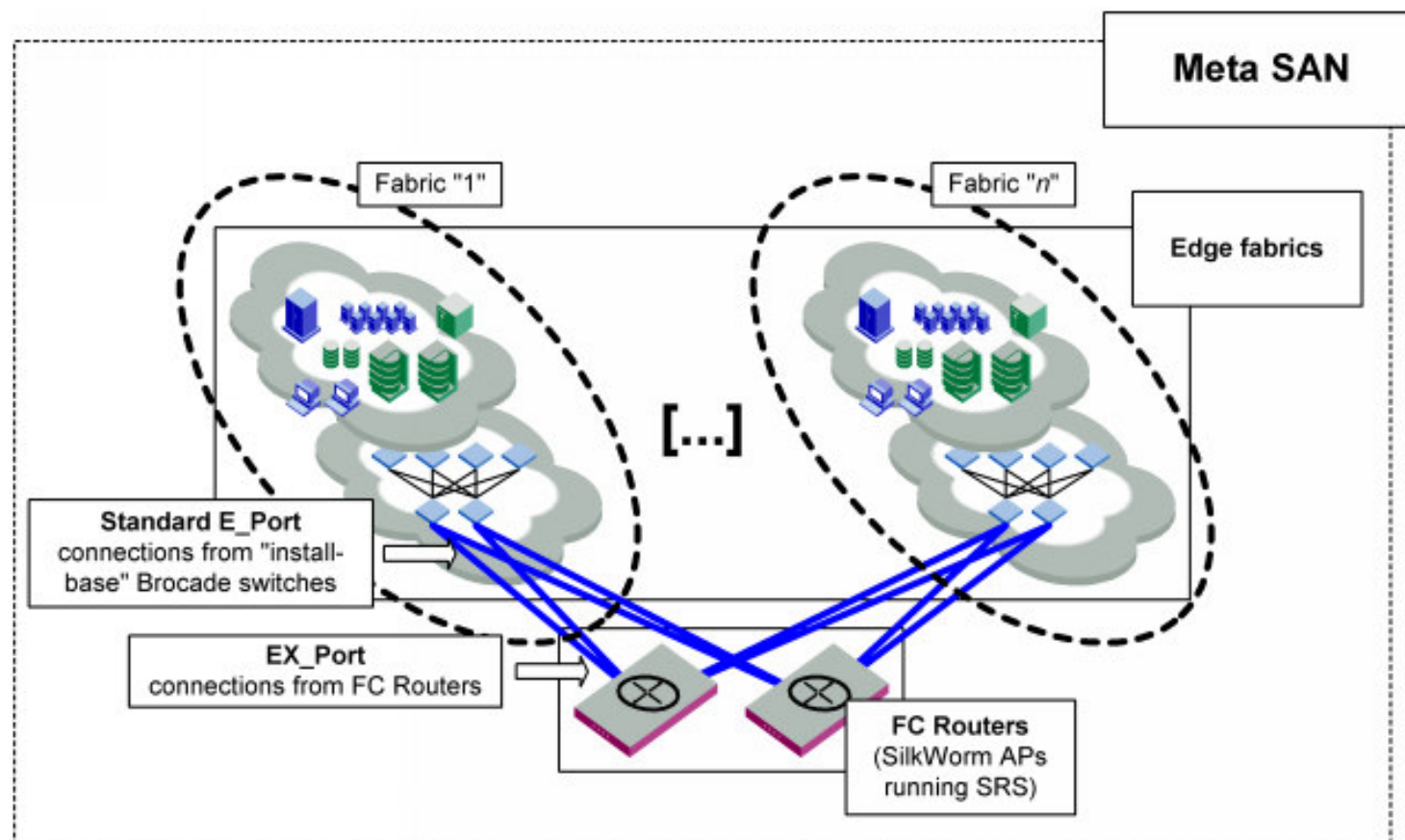
FC-to-FC Routing Service

- Logically connect SAN islands
- Enable shared resource access across multiple fabrics without merging them
- Maintain administration and fault isolation of separately managed fabrics

- Current business infrastructure remains in tact
- Cost Savings
- Non-disruptive implementation
- Human errors are still contained by the SAN island
- Enterprise resources now attainable for company wide use

Meta SAN

- Includes all devices, software, edge fabrics, and backbone fabric





Multi-Protocol Router & Fabric Manager P/Ns

Multi-Protocol Router Product Information

- A7437A
 - Multi-protocol Router Base 8-port
 - Multi-protocol Router providing Fibre Channel subnet routing and FCIP tunneling services
- A7438A
 - Multi-protocol Router Full 16-port
 - Multi-protocol Router providing Fibre Channel subnet routing and FCIP tunneling services
- A7439A
 - Multi-protocol Router Upgrade License
 - Flexible port upgrade license to increase the base 8-port model to 16 ports

Fabric Manager

Product Information

- A7390A
 - Fabric Manager Base Edition
 - Supports up to 10 domains/switches
- A7389A
 - Fabric Manager Enterprise Edition
 - Supports up to eight fabrics and/or 200 domains/switches
- A7391A
 - Fabric Manager v3 to v4 Enterprise license upgrade
- A7392A
 - Fabric Manager Base to Enterprise license upgrade

HP WORLD 2004

Solutions and Technology Conference & Expo

Co-produced by:

