



AR Speaker Series: Building Cost-effective Storage Area Networks

*Cisco MDS – Delivering Secure
Information Management*



Rajeev Bhardwaj, Director of Product Management, DCBU
Deepak Munjal, Marketing Manager, Data Center Solutions

Data Center Storage Networking Trends

Encryption of Tapes & Disks



- Increased compliance and regulatory mandates
- Business risk if data is lost or stolen

Online Data Migration



- Tiered storage requirements
- Ongoing storage lease expiry
- Minimize application downtime

Blade Servers Deployments



- Enterprise-class scalability
- Seamless interoperability
- Simplified management

The Network is the Platform for Intelligent SAN Services

Introducing SAN-OS 3.2: Delivering Secure Information Management

Secure Information Management

“The network is now the scalable multiservice platform to deliver intelligent fabric applications to **encrypt data on tapes and disks**, non-disruptively **migrate data** across heterogeneous storage arrays, and **simplify Blade Server management**”

MDS 9000 Family of Multilayer Directors and Fabric Switches



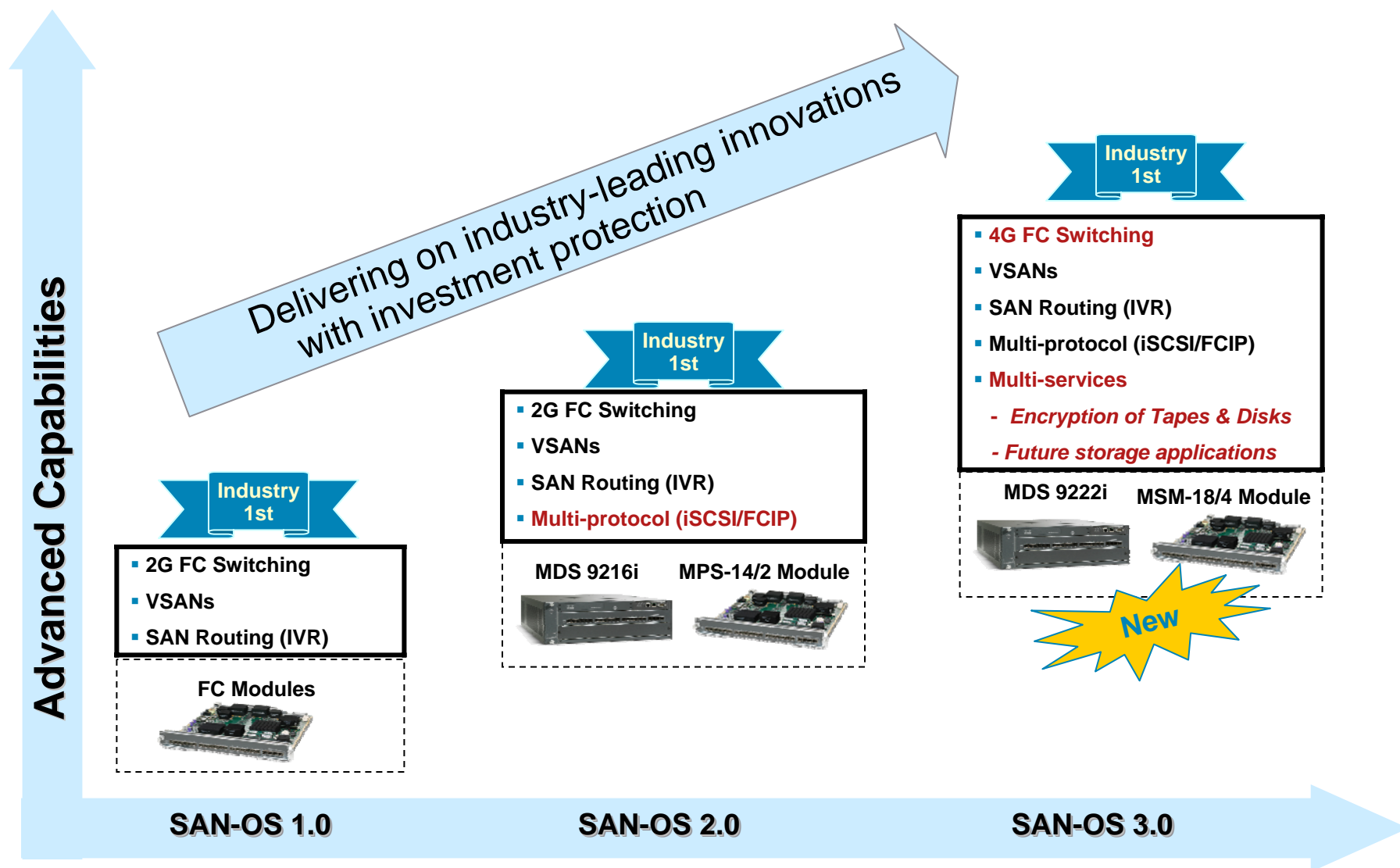
New Hardware Platforms

- MDS 9222i Multiservice Modular Switch
- MDS 18/4-Port Multiservice Module
- MDS 9134 Multilayer Fabric Switch

New Feature Set

- Storage Media Encryption (SME)
- Data Mobility Manager (DMM)
- N-Port Virtualizer (NPV)

Introducing MDS 9000 Multiservices Platforms: Foundation for Secure Information Management



MDS 9222i Multiservice Modular Switch and 18/4-Port Multiservice Modules

Integrated Multi-Protocol

- Integrated FC, FICON, FCIP, iSCSI support
- 18 x 4-Gbps Fibre Channel ports
- 4 x 1-Gbps Ethernet IP Storage Services ports
- SAN Routing (IVR) on each port

MDS 9222i



MSM-18/4

MSM-18/4 (FIPS Level 3)



Storage Media Encryption (SME)

- Encrypts data on tapes/disks
- Delivers encryption as a fabric based service
- HW-based crypto engine (10G)
- FIPS Level 3*

IP Storage (iSCSI & FCIP)

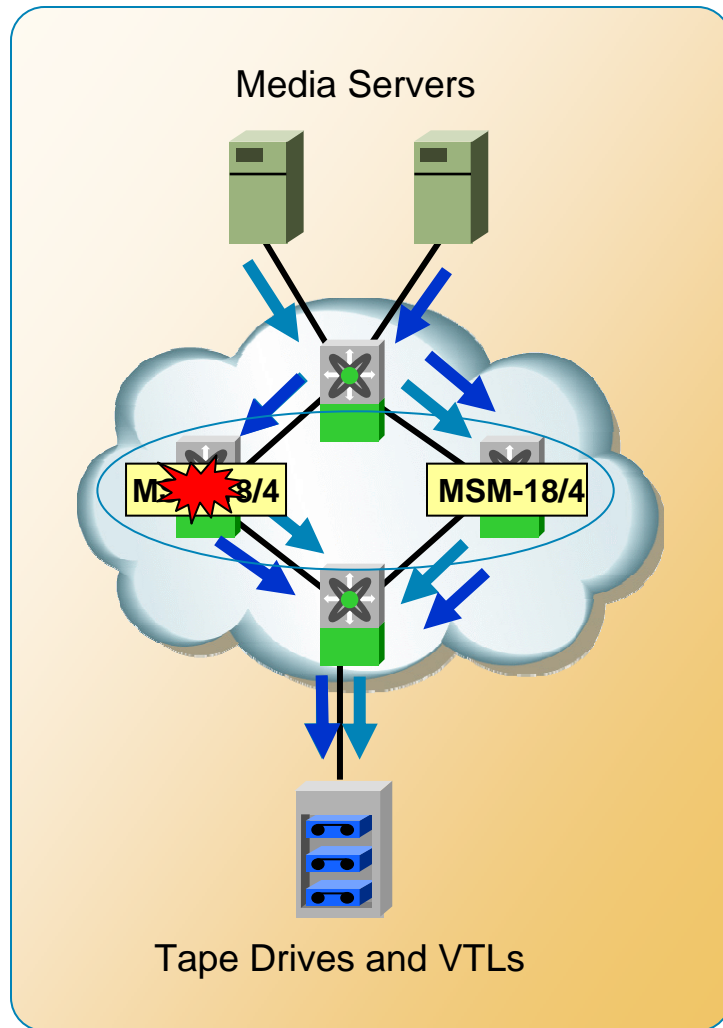
- HW-based FCIP Compression
- HW-based Encryption (IPsec)
- FCIP Disk and Tape I/O Acceleration
- IPv6 support
- SAN Extension Tuner (FCIP)

High-Availability

- VSANs
- In-Service Software Upgrades (ISSU)

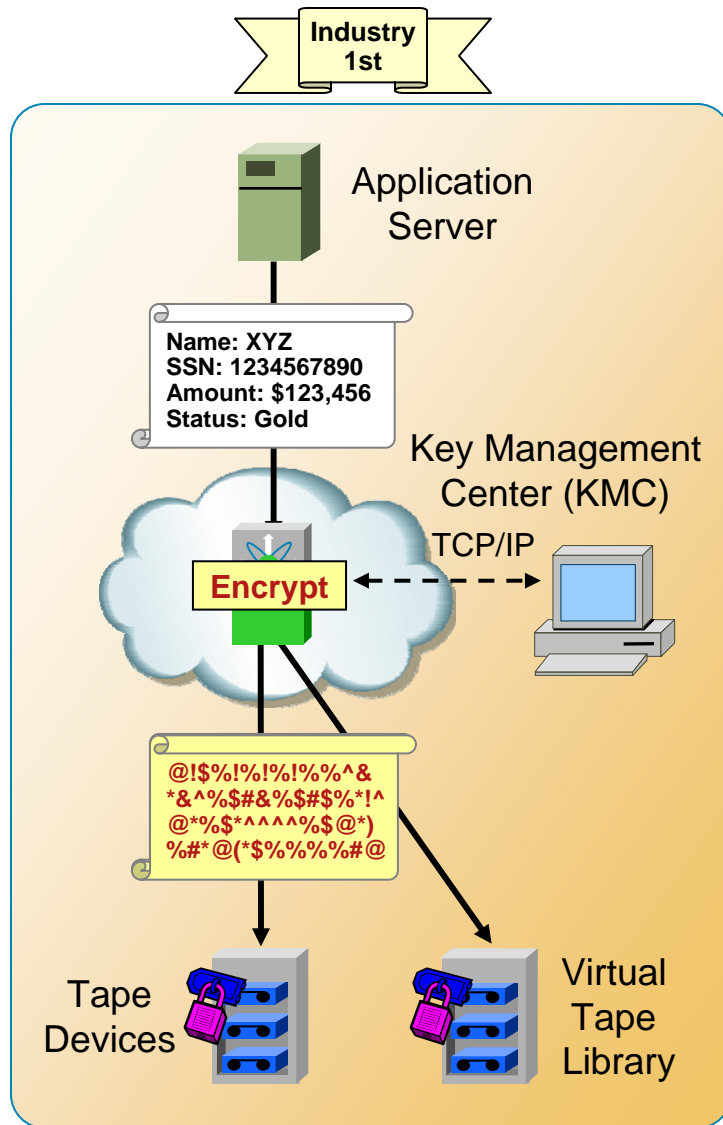
* Certification in progress

Intelligent Storage Applications: Delivered as a Transparent Fabric Service



- Extend storage services to any device in the SAN
- No SAN re-configuration
- No re-wiring to insert appliances
- Transparent to applications
- Modular, clustered solution offers performance and high-availability
- Wizard-based provisioning

Introducing Storage Media Encryption (SME)



- Encrypts tapes and disk
 - Strong, Std. IEEE AES-256 encryption
 - Integrates as transparent fabric service
 - Handles traffic from any virtual SAN (VSAN) in fabric
- Supports heterogeneous, SAN attached tape devices and virtual tape libraries
- Includes secure key management
 - Open API integrates with enterprisewide, lifecycle key managers
- Compresses tape data
- Allows offline, software only media recovery
- FIPS-Level 3 Compliant

Cisco MDS SME Hardware Platforms



MDS 9000 Family Systems

MDS 9000 Modules

Mgmt

OS

HIGH-PERFORMANCE INTEGRATED SOLUTION WITH MULTI-GIGABIT THROUGHPUT



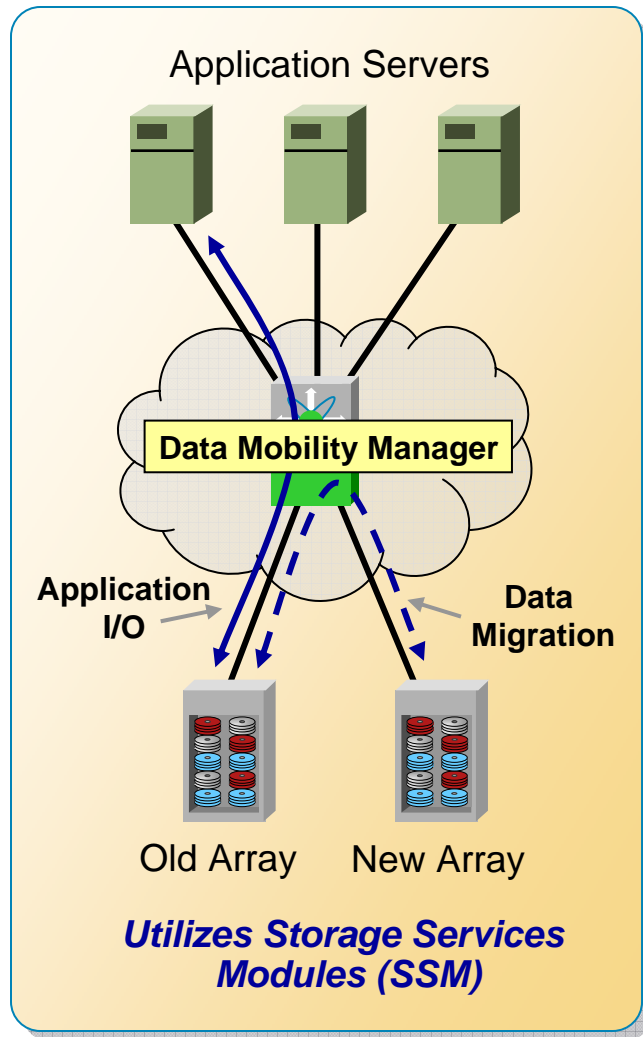
Encrypts traffic from any port in fabric – Requires no rewiring

18/4-Port Multiservice Module (MSM-18/4)

Cisco Fabric Manager w/Key Management Center


Cisco MDS 9000 Family SAN-OS

Introducing Data Mobility Manager (DMM)



- Migrates data between storage arrays for
 - Technology refreshes
 - Workload balancing
 - Storage consolidation
- DMM offers
 - Online migration of heterogeneous arrays
 - Simultaneous migration of multiple LUNs
 - Unequal size LUN Migration
 - Rate adjusted migration
 - Verification of migrated data
 - Secure erase
 - Dual fabric support
 - CLI and wizard-based management with Cisco Fabric Manager
- Requires no SAN re-configuration or rewiring

Cisco DMM Enabled Platforms



MDS 9000 Family Systems

MDS 9000 Modules

Mgmt.

OS

HIGH-PERFORMANCE INTEGRATED SOLUTION WITH MULTI-GIGABIT THROUGHPUT

SAN-OS 3.2

MDS 9222i

**MDS 9216A
MDS 9216i**

MDS 9506

MDS 9509

MDS 9513

Storage Services Module (SSM)

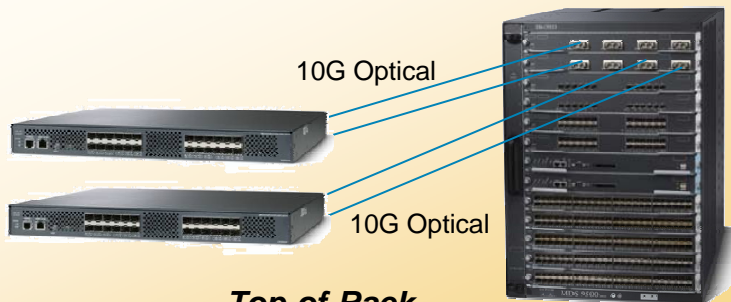
Cisco Fabric Manager w/ DMM Wizard

Cisco MDS 9000 Family SAN-OS

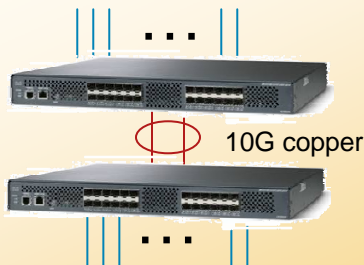
MDS 9134 Multilayer Fabric Switch Extending the Fabric Switch Portfolio



Standalone 32-port SAN Switch



**Top-of-Rack
Enterprise core-edge**



High density stackable 64-Port SAN Switch

MDS 9134 Platform

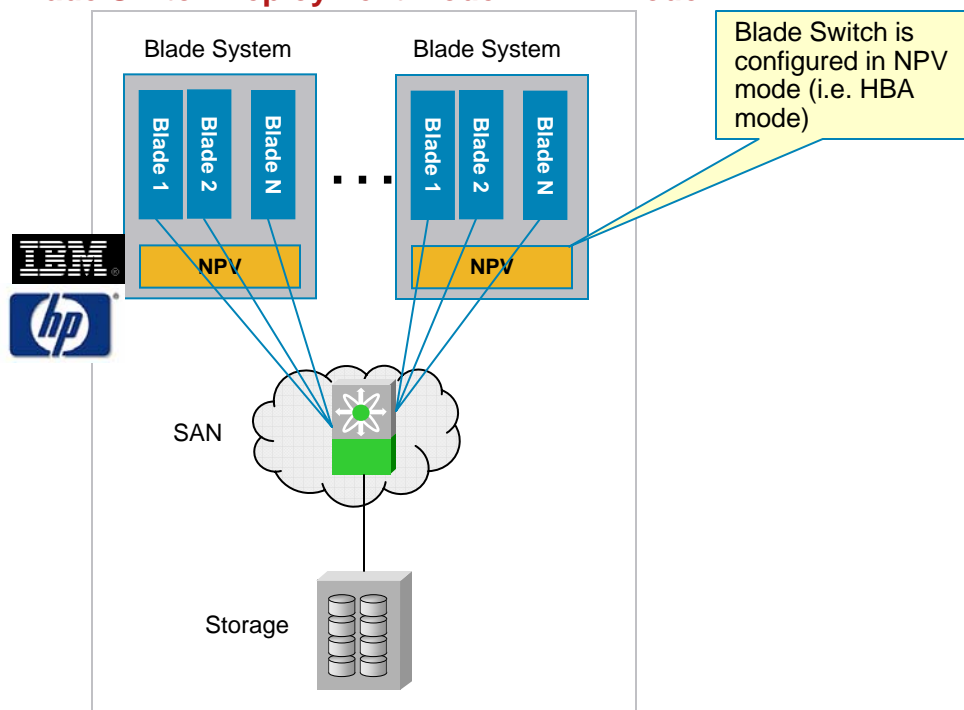
- 32 x 4G + 2 x 10G FC ports in 1 RU form-factor
Line rate performance on each port
- Multiple deployment options
Standalone – Up to 32 x 4G ports
Enterprise core-edge – Up to 32 x 4G + 2 x 10G
High density stackable – Up to 64 x 4G ports
- On-demand ports
24-port base with 8-port license for growth
10G port license for additional connectivity
- Redundant, hot-swappable power supplies

Powered by SAN-OS Software

- Dramatically simple and ease-to-use
- Cisco's market leading Enterprise-class functionality now available on entry-level fabric switches
Security, Availability, and Flexibility

Introducing N-Port Virtualizer (NPV): Enables Large-Scale Blade Server Deployments

Blade Switch Deployment Model – NPV Mode



- NPV converts a Blade Switch operating as “FC Switch” to a “FC HBA”
- NPV simplifies deployment and management of large scale Blade Server environments by:
 - Reducing number of Domain Ids
 - Minimizing interoperability issues with Core SAN switch
 - Minimizing coordination between Server and SAN administrators
- NPV is available on the following platforms
 - IBM and HP Blade Switches
 - MDS 9124 & 9134 Fabric Switches

Cisco MDS 9000 Meets Top Customers Needs

Encryption of Tapes & Disks



- **Storage Media Encryption (SME)** delivered as a fabric service for encryption of heterogeneous tapes and disks

Online Data Migration



- **Data Mobility Manager (DMM)** delivered as a fabric services for online data migration across heterogeneous storage arrays

Blade Servers Deployments



- **N-Port Virtualizer (NPV)** for simplifying deployment and management of large scale Blade Server deployments

MDS 9222i and MSM-18/4 Module provide a Multiservice platform for enabling Secure Information Management

Thank You

- Upcoming Speaker Series
 - Network-based Service Orchestration – Sept. 19
- Analyst Relations Contacts
 - Amal Nichols – amnichol@cisco.com
 - Ben Culp – beculp@cisco.com

