

Locking Up Your Storage Network (Securing the SAN Infrastructure)



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The intelligent platform for networking storage

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Why Secure SANs?

- Security is a fundamental requirement for enterprise SANs, just like any other network
- As SANs increase in size and are inter-networked over MAN/WANs, physical monitoring and management is no longer feasible or cost-effective
- Multi-tenant environments have new security requirements
 - Security enables sharing of SAN resources among multiple customers securely
 - Reduces xSP infrastructure costs and enables economies of scale



SAN Security Requirements

- New levels of access control
- Strong authentication
- More controls in SAN Fabric Management
- Confidentiality (data privacy)



New Levels of Access Control

- SAN fabrics require more controls to prevent unauthorized access:
 - To a switched fabric to gain access to sensitive information such as zoning data, security policies etc.
 - To SAN fabric switches (using a laptop) through unprotected connections (serial ports etc.)
 - Through the front panel of fabric switches and other SAN infrastructure devices
- SAN fabrics require more granularity in management access controls
 - Multiple user/administrator roles



Strong Authentication

- Without authentication, SANs are susceptible to:
 - Spoofing: Hosts (servers) sign on with phony WWNs and get access to devices they shouldn't
 - Denial of service attack: unauthorized host application sends out a high volume of dummy management messages or I/Os to a LUN it doesn't own
 - Rogue devices could be added to the fabric



More Controls in SAN Fabric Management

- The need for controlling how a SAN fabric is managed
 - Ability to turn on or off certain management access to the fabric
 - Control of end points accessing management facilities within the fabric
 - Secure remote management access
 - Centralization of configuration (security) parameters – secure distribution of critical management data



Confidentiality

- Encryption is required to eliminate eavesdropping threats:
 - Cleartext passwords and other data
 - Secure Remote Access – Encrypted management data
 - Unauthorized analysis on the Fibre Channel line or other interfaces to analyze management or data traffic (e.g., Sniffers)



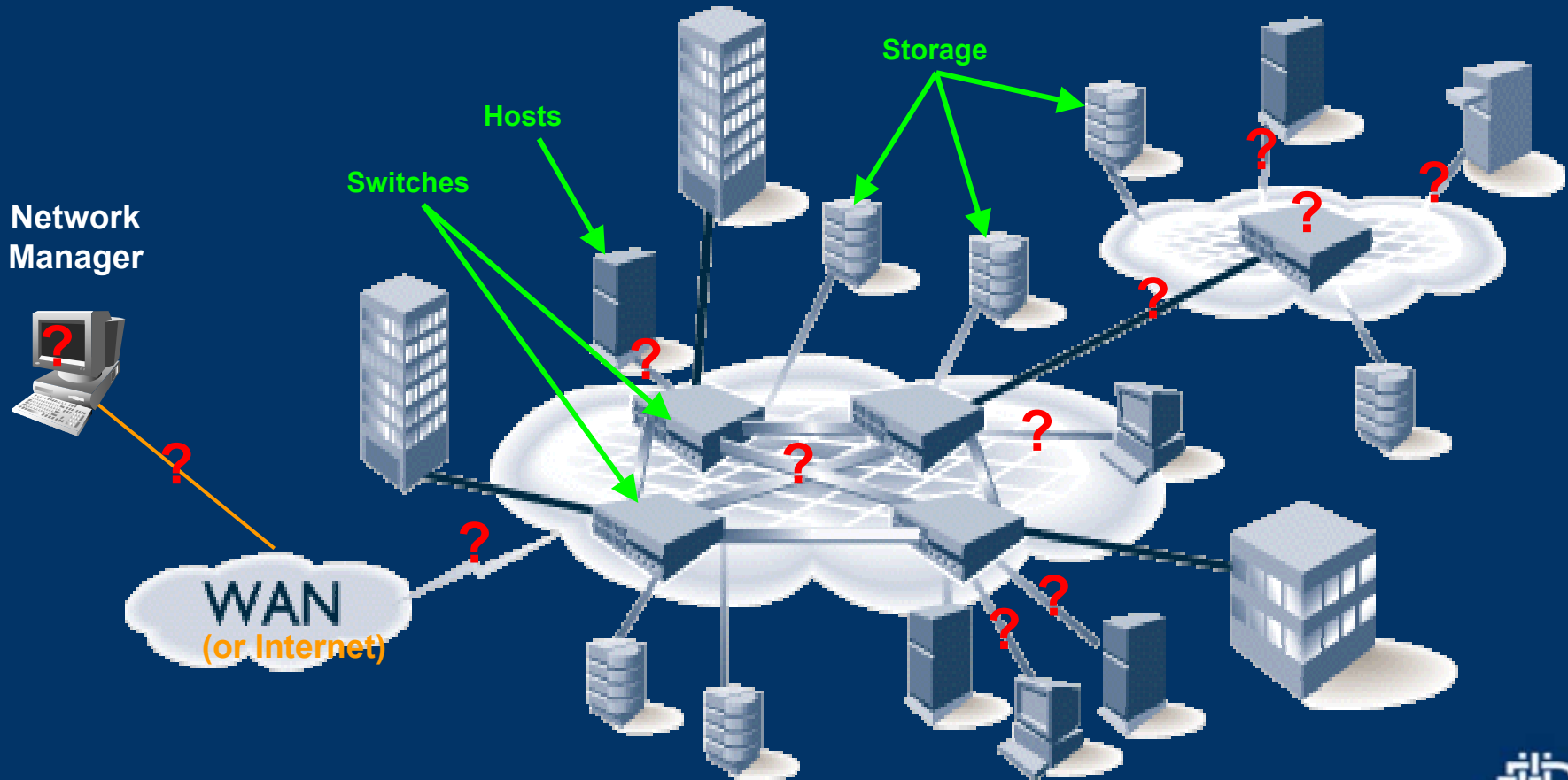
SAN Security – An Infrastructure Decision

- Security is a fundamental consideration when designing SANs and selecting SAN infrastructure
- As with any network, SAN security must be:
 - Robust
 - Scalable
 - Policy-based
 - Based on proven, standards-based mechanisms
 - Manageable
 - Auditable

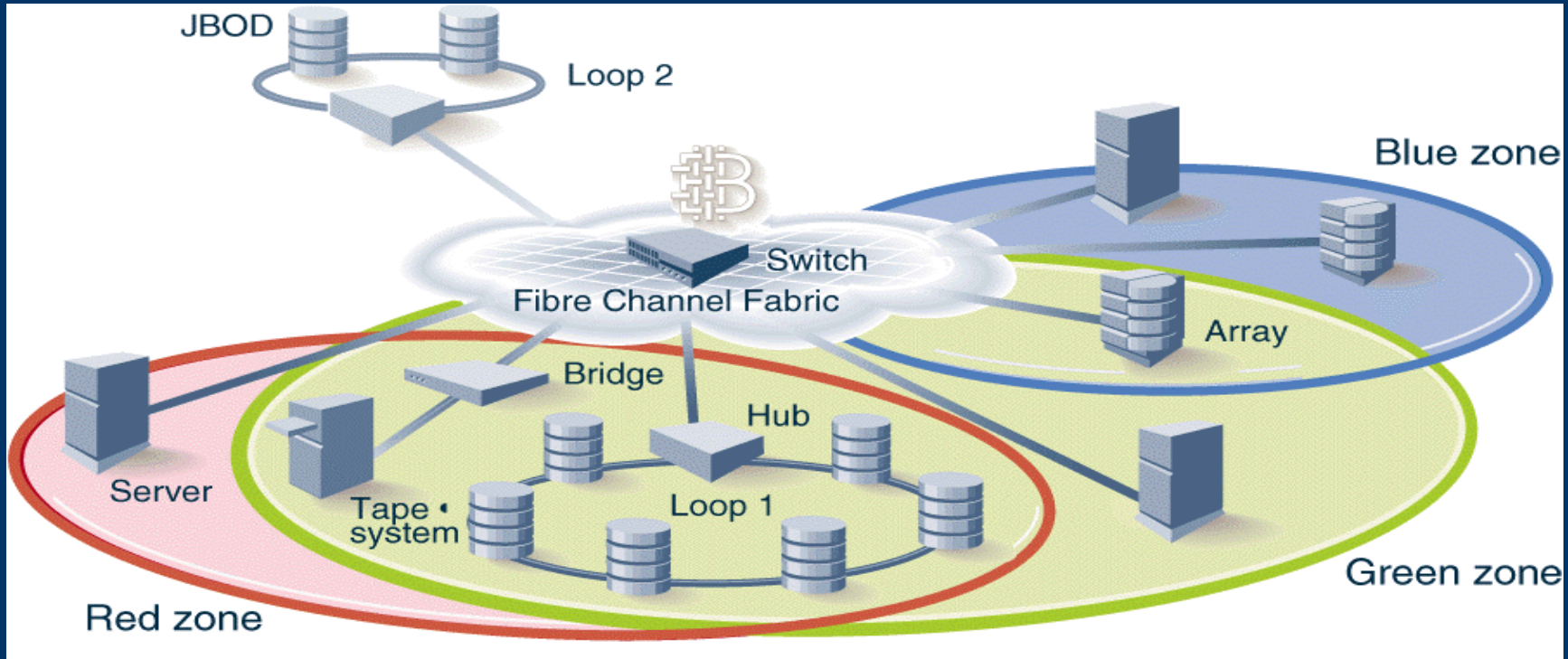


SAN Fabric Security Vulnerabilities

? = Potential Security Control Points



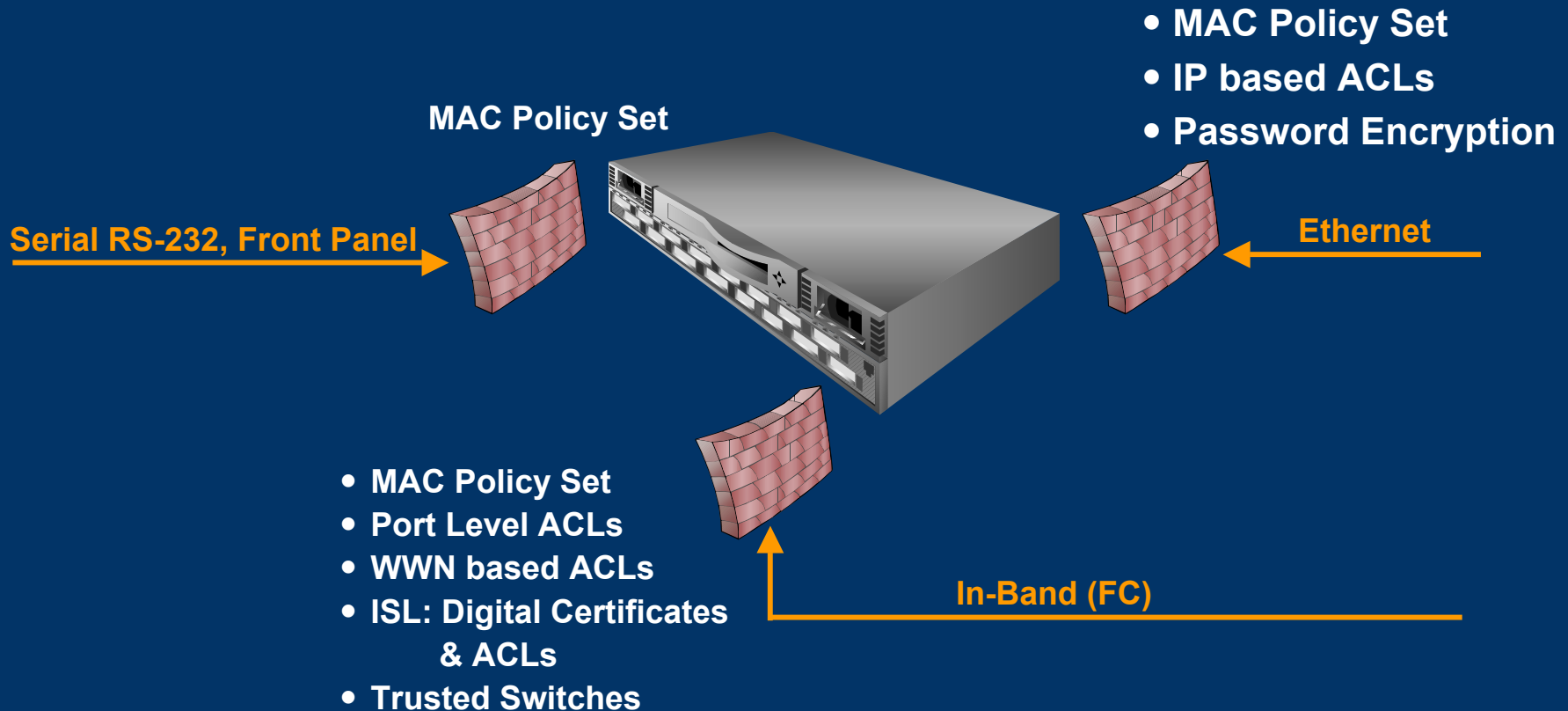
Zoning: Association of Storage with Servers (Today)



- Zoning: Logical association of storage with servers
 - Used for access control (I.e. No zone sees Loop 2)
 - Must be hardware enforced



Fabric Security Controls



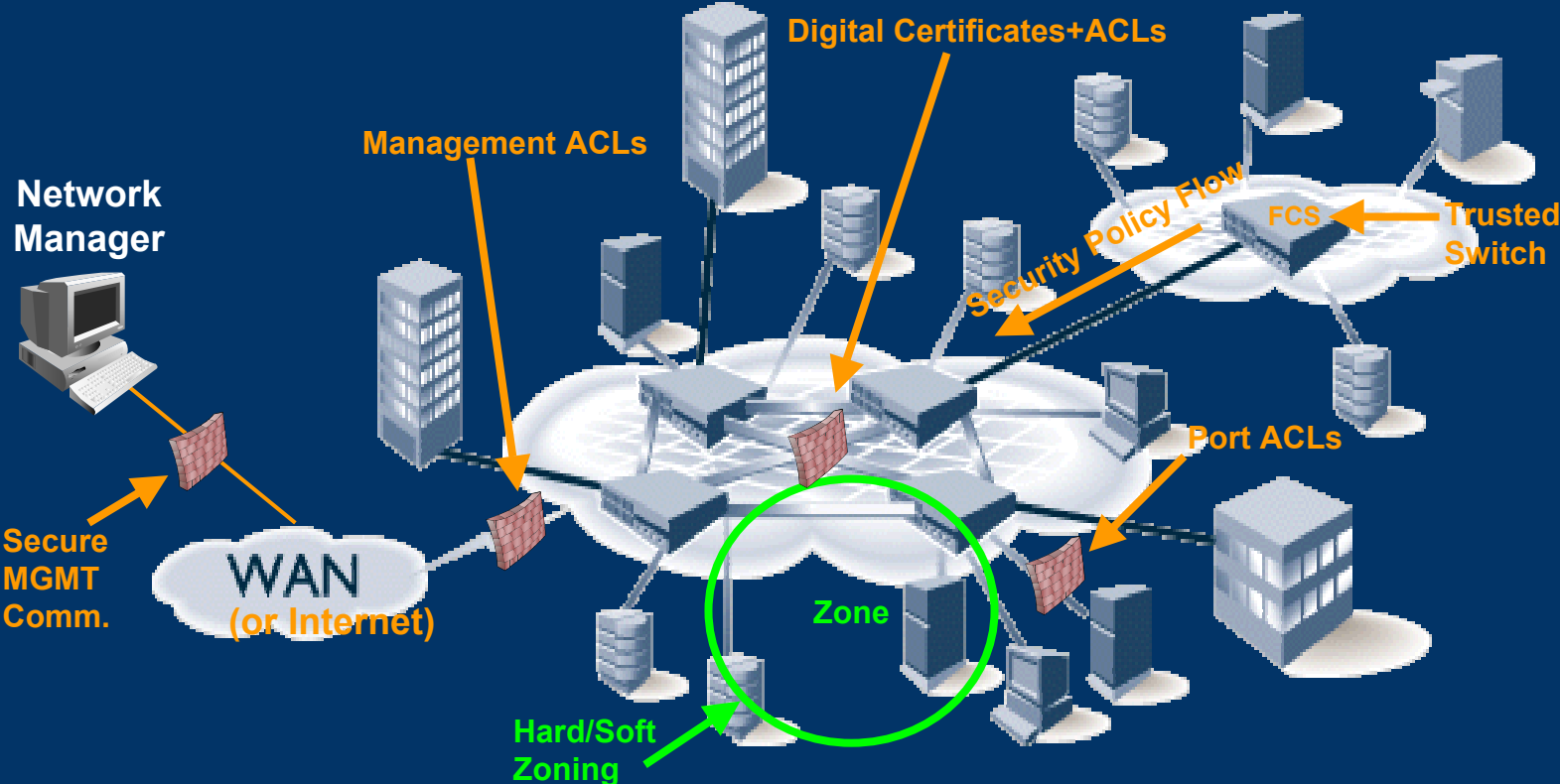
MAC = Management Access Controls

ACL = Access Control List

ISL = Inter Switch Link



A Secure SAN Infrastructure



Security Threats and Best-in-Class Solutions

<i>Threat/Risk</i>	<i>Best-In-Class Solutions</i>
Unauthorized/ Unauthenticated User Access	<ul style="list-style-type: none">- Multilevel password control and encryption- Strong authentication – Integrate with customer’s existing RADIUS / TACACS+ / other infrastructure
Insecure Management Access	<ul style="list-style-type: none">- Management access control policies- Encrypt mgmt. information (user name/password) where applicable <p>Other Solutions : SSL, SSH, IPSEC</p>
Spoofing of Device Names (WWNs)	<ul style="list-style-type: none">- More granular access control for hosts/servers (at port level)- Strong in-band authentication of SAN fabric logon attempts
Management Controls From Uncontrolled Access Points	<ul style="list-style-type: none">- Asymmetric management approach-Trusted switches to set security controls- Use of strong authentication (PKI)



For More Information

- Please access the Secure Fabric OS white paper and datasheet at:
 - http://www.brocade.com/SAN/white_papers.jhtml
 - http://www.brocade.com/SAN/data_sheets.jhtml
- Other Educational Tools
 - Brocade SAN Security Course (2 days)
 - SAN Security - A Best Practice's Guide
- Contact your Brocade Partner or Sales Executive
- E-mail: info@brocade.com



Thank You

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