



Exam : 642-355

**Title : Cisco Storage Networking Solutions
Design Specialist**

Ver : 11.08.07

QUESTION 1

Which technology should be used to provide transparent low latency FC transport across a metropolitan area?

- A. DWDM
- B. FCIP
- C. iSCSI
- D. iFCP

Answer: A

QUESTION 2

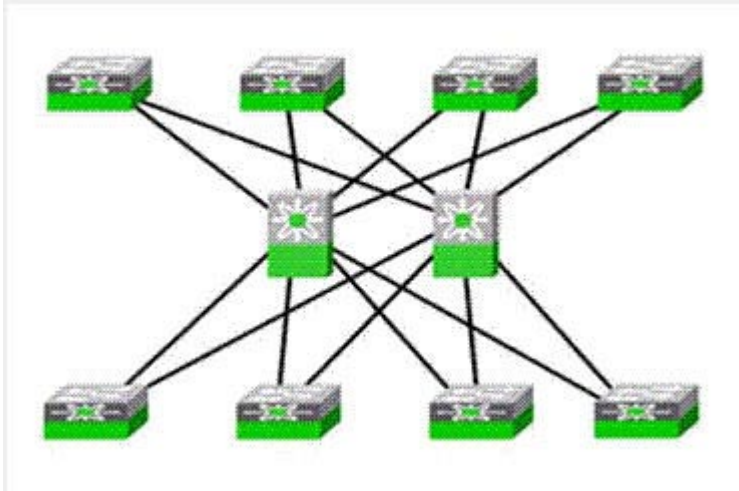
Which statement is true concerning the Cisco MDS switch when operating in native interop mode?

- A. The MDS switch can interoperate with Non-MDS switches that are certified by SNIA.
- B. The MDS switch can interoperate with Non-MDS switches that support "MDS Native" mode.
- C. The MDS switch can interoperate with Non-MDS switches that properly adhere to Fibre Channel switch standards.
- D. The MDS switch cannot interoperate with Non-MDS switches.

Answer: C

QUESTION 3

Your customer has an existing SAN with eight edge switches and two core switches.



In your detailed assessment, which metric will help you convince the customer to consider an alternative, more highly available topology?

- A. SFP characteristics
- B. total portcount
- C. cost of edge switch devices
- D. total versus usable ports for end devices

Answer: D

QUESTION 4

A customer would like to add Cisco MDS switches to an existing Brocade environment with minimal disruption. The Brocade switches are using PID-0 mode. Which two features will enable the creation of a Cisco-Brocade heterogeneous fabric without restricting the feature set of either switch? (Choose two.)

- A. interop mode 1
- B. interopmode2
- C. interopmode3
- D. IVR
- E. PortChannels
- F. CWDM

Answer: B, D

QUESTION 5

Your customer has a number of data storage requirements: servers are not responsible for volume management or data migration storage is provisioned in real time legacy and heterogeneous storage assets can be consolidated and fully utilized data can be protected using simplified snapshot and replication techniques data can be assigned to different classes easily. Which solution would meet these requirements?

- A. VSANs
- B. Wide-Area Application Services (WAAS)
- C. fabric-based virtualization
- D. LUN zoning
- E. host-based virtualization

Answer: C

QUESTION 6

Select three advantages of using fabric-based storage virtualization instead of host-based virtualization. (Choose three.)

- A. offers a single point of management
- B. supports heterogeneous storage
- C. does not require a host agent
- D. insulates the hosts from storage changes
- E. provides mirroring

Answer: A, C, D

QUESTION 7

Which are two characteristics of the Cisco MDS Series fan modules? (Choose two.)

- A. Supervisor modules shut down the fan modules when the air temperature is below a preset threshold.
- B. If the Fan Status LED turns red, a fan has failed and the module must be replaced.
- C. Fan modules monitor air temperature and shut down if the temperature exceeds a preset threshold.
- D. Fan modules do not require the switch to be powered off in order to be replaced.

Answer: B, D

QUESTION 8

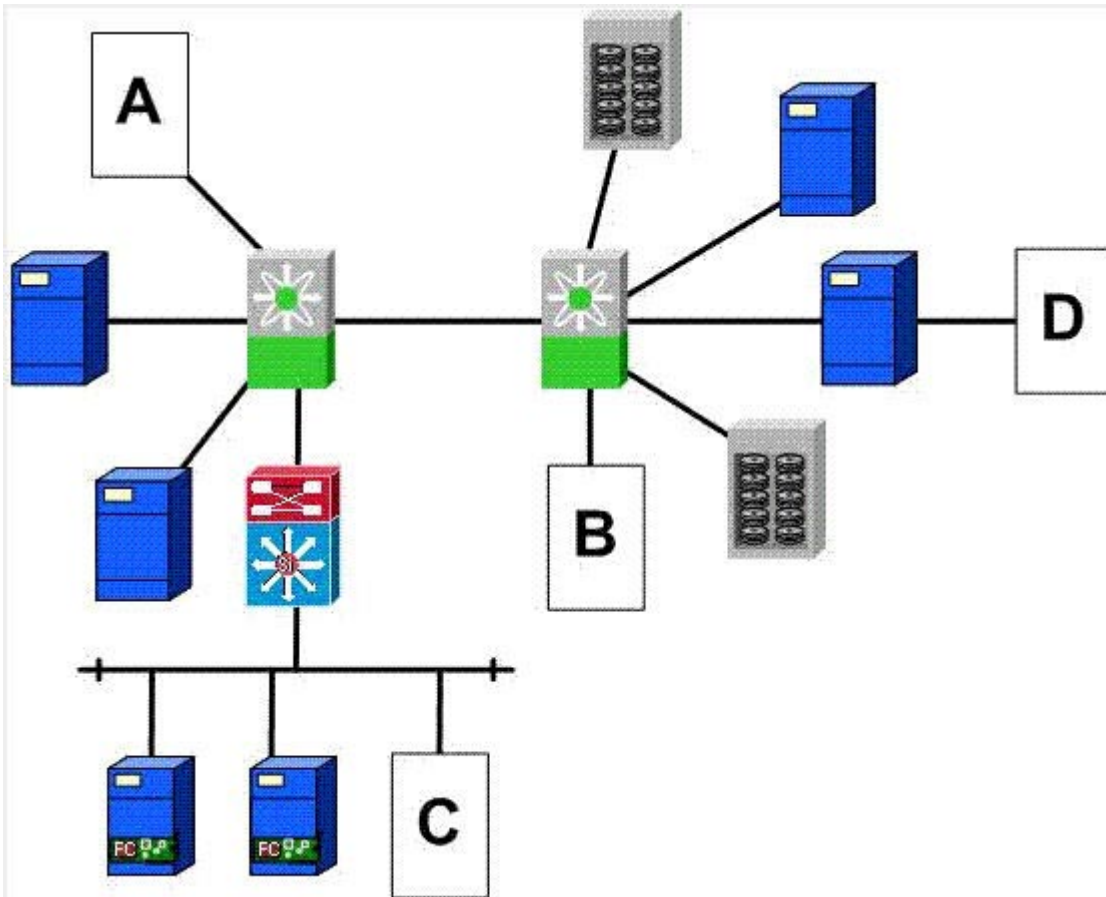
Your customer is using an IPS-8 module in its data center to provide FCIP connectivity to 20 remote sites. It has encountered connectivity problems at four of the remote sites. After investigating, the customer's network administrator found that the IPS-8 is sending 2300-byte packets, but the receiving switches at the four remote sites do not support jumbo frames. What should you do?

- A. Disable packet shaping on the IPS-8
- B. Reduce the minimum retransmit timeout
- C. Disable jumbo frames on the IPS-8
- D. Enable Path MTU discovery

Answer: D

QUESTION 9

A customer plans to add a tape backup subsystem to its existing storage network.



In which location should the customer place the tape backup device in order to provide the best performance during backup and recovery?

- A. A
- B. B
- C. C
- D. D

Answer: B

QUESTION 10

Your SAN environment requires redundant fabrics with redundant connectivity for 40 database hosts at 2 Gbps of throughput per host. Which two of these configurations are possible? (Choose two.)

- A. two 48-port line cards
- B. four 46-port line cards
- C. four 32-port line cards
- D. six 16-port line cards
- E. two 32-port line cards and two 16-port line cards

Answer: B, D

QUESTION 11

Your customer wants to implement a SAN with redundant fabrics supporting 600 device ports. Which two Cisco MDS 9000 Family configurations will meet the customer's needs? (Choose two.)

- A. two MDS 9509 switches with redundant Supervisor-1 modules
- B. two MDS 9509 switches with redundant Supervisor-2 modules
- C. two MDS 9513 switches with redundant Supervisor-1 modules
- D. two MDS 9513 switches with redundant Supervisor-2 modules

Answer: B, D

QUESTION 12

A customer has a need to synchronously replicate data from the primary data center to a standby data center that is 30 kilometers away. The customer owns the fiber between the two data centers and uses the link for Gigabit Ethernet connectivity today. The Gigabit Ethernet connection is heavily utilized and generally remains at 90-percent utilization. The customer expects that the replication traffic will require approximately 30 MBps, and is looking for a low-cost solution. Which replication solution would you recommend?

- A. FCIP
- B. CWDM
- C. DWDM
- D. iSCSI

Answer: B

QUESTION 13

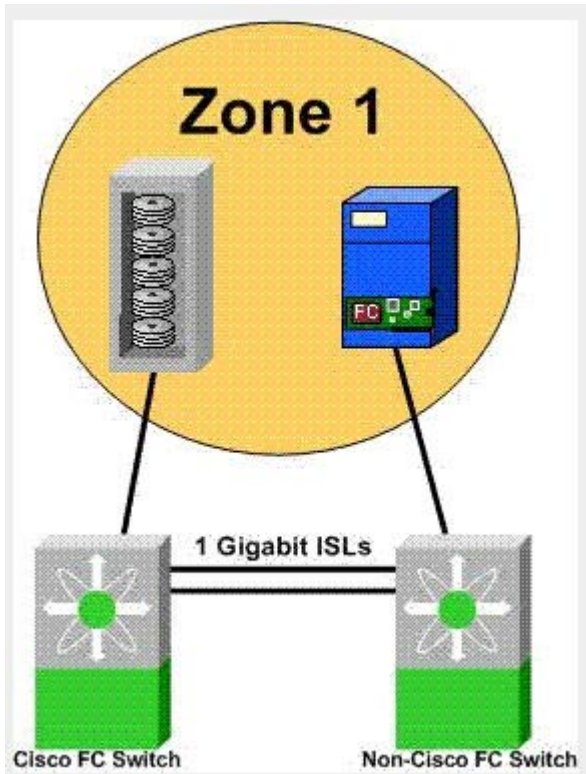
Which SAN extension topology is a low-latency, cost-effective, high-bandwidth solution that is suitable only within a limited geographical area?

- A. FCIP
- B. DWDM
- C. CWDM
- D. SONET/SDH

Answer: C

QUESTION 14

What port type should be used between the two switches to maximize performance?



- A. B
- B. E
- C. F
- D. NL
- E. TE

Answer: B

QUESTION 15

Which of these provides fabric-based virtualization for multiple independent software vendors?

- A. Storage Services Module (SSM)
- B. Cisco MDS 9000 32-port 1/2-Gbps Fibre Channel module
- C. Multiprotocol Services module
- D. Cisco MDS 9513 Supervisor 2

Answer: A

QUESTION 16

How does Role-Based Access Control (RBAC) enhance manageability in an environment with VSANs?

- A. limits operator errors by isolating user management domains within a large physical infrastructure

- B. specifies port membership to a specific VSAN
- C. configures security options for host ports that are assigned to a VSAN
- D. configures VSAN membership for specific trunk ports

Answer: A

QUESTION 17

Your customer uses a custom change-management application. The customer wants running configuration files from Cisco MDS 9000 switches to be saved automatically to an FTP server every night. How can this be accomplished?

- A. The customer must purchase Fabric Manager Server to set up automated jobs.
- B. The customer must purchase the Enterprise license to enable Batch Job Automation.
- C. The customer can use the CFS feature to distribute a command job to each switch in the fabric.
- D. The customer can use the CLI Command Scheduler to set up automated jobs.

Answer: D

QUESTION 18

Your customer has implemented an IPS-8 for iSCSI connectivity to workgroup servers. How can this customer prevent unauthorized hosts from connecting to the Cisco MDS 9000 fabric through the iSCSI interfaces?

- A. Configure RADIUS authentication
- B. Configure IPsec encryption on the IPS-8
- C. Configure IP ACLs on the IPS-8
- D. Configure fabric binding on the IPS-8

Answer: C

QUESTION 19

What is the definition of fan-in ratio as it applies to SANs?

- A. the ratio of host ports that need to access a single storage port
- B. the ratio of storage ports to a single host port
- C. the amount of aggregate port bandwidth in the path from storage port to host port
- D. the amount of aggregate bandwidth of ISLs in the path from host port to storage port

Answer: A

QUESTION 20

Your customer has 40 servers attached to the edge switch in a core-edge design. Each server's average throughput is between 22 and 35 MS. How many 4 GB ISLs should be provisioned between the edge and the core, and what will the ISL oversubscription ratio be?

- A. 4, 20:1
- B. 8, 5:1
- C. 4, 10:1
- D. 8, 10:1

Answer: C

QUESTION 21

Which three solutions would be suitable for data replication between two data centers separated by 450 km?

- A. FCIP over routed IP network
- B. FCIP over SONET/SDH
- C. iSCSI over SONET/SDH
- D. CWDM
- E. DWDM
- F. Dark fiber

Answer: A, B, E

QUESTION 22

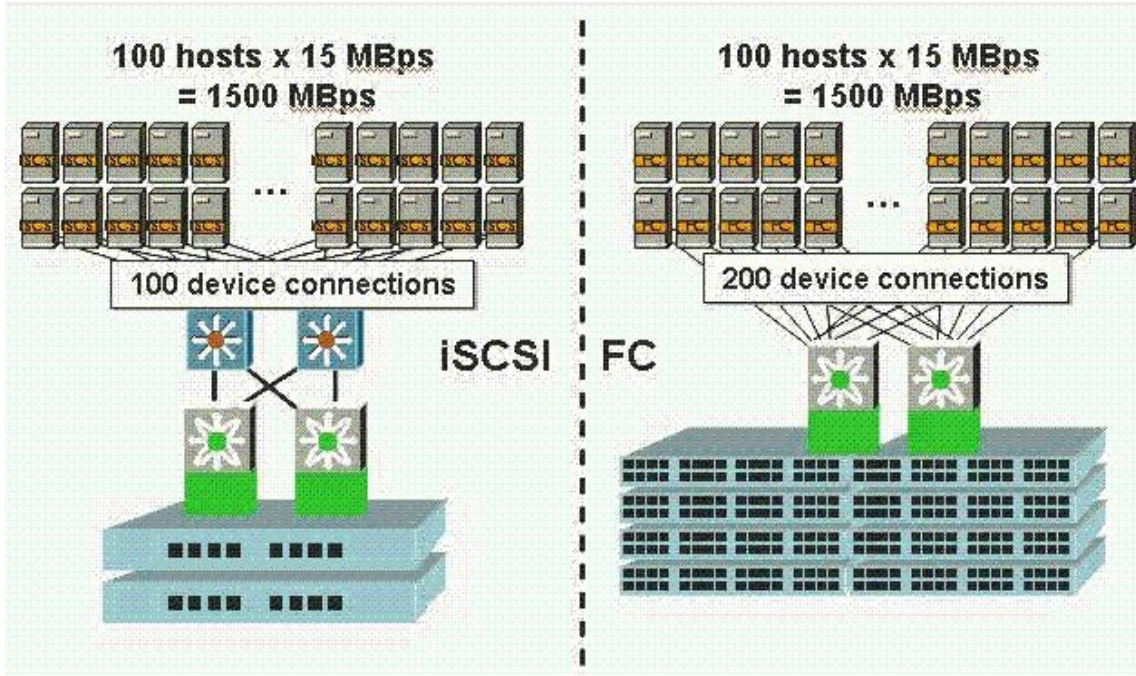
What are three key benefits of implementing a SAN using iSCSI? (Choose three.)

- A. uses existing IP networking, monitoring, and management infrastructure
- B. is more efficient than FC since it requires fewer encapsulations
- C. maintains consistent performance over IP networks of varying distances
- D. significant capital cost reduction by substituting iSCSI as a transport technology
- E. extends existing FC SAN to IP connected hosts

Answer: A, D, E

QUESTION 23

In this scenario, the total bandwidth requirement is 1500 Mbps but there are 100 hosts that each need 15MBps of bandwidth.



Which two statements are correct about the topologies shown in the exhibit? (Choose two.)

- A. If the iSCSI configuration has two IPS-8 modules, it will not be oversubscribed.
- B. The Fibre Channel implementation will require 100 HBA ports.
- C. iSCSI is the more cost-effective solution with high fan-in ratios.
- D. The Fibre Channel implementation is the more cost-effective solution with high fan-in ratios.
- E. The Fibre Channel implementation would require two 32-port switching modules in the Cisco MDS switches per fabric.

Answer: A, C

QUESTION 24

A government agency data center that is used for tax processing is located in an earthquake fault zone. A backup data center, located 300 km away, is linked to the main data center over an OC-3 connection. Which of the following provides the best solution to extend the SAN for business continuance and for support of their IP applications?

- A. synchronous replication using FCIP
- B. iSCSI
- C. FCIP and asynchronous replication
- D. dark fiber connectivity and use of synchronous replication over PC

Answer: C

QUESTION 25

A customer recently deployed a pair of Cisco MDS 9216i Multilayer Fabric Switches to support an ERP application. The MDS 9216i expansion slot is still unused. The customer examined other infrastructure services and applications to determine if they should leverage the SAN storage

capacity, and decided that it would be beneficial to attach eight Microsoft Exchange servers to the SAN. Each Microsoft Exchange server generally drives approximately 50 MBps of disk throughput and has two Fibre Channel host bus adapters.

Which line card should be used to support the Microsoft Exchange server SAN connectivity?

- A. 16-port Fibre Channel line card
- B. 32-port Fibre Channel line card
- C. Multiprotocol Services Module line card
- D. None; use the IP storage interlaces.

Answer: B

QUESTION 26

A customer is concerned about the security of its SAN. It wants to prevent unauthorized hosts and switches from connecting to the SAN fabric. Which technology should be enabled on the Cisco MDS 9000 SAN to accommodate this customer requirement?

- A. DH-CHAP
- B. Auto-Learn
- C. role-based authorization
- D. zones
- E. SSH

Answer: A

QUESTION 27

What effect does VSAN technology have on typical capacity planning for a storage network?

- A. Because of the complete isolation of VSANs, more ports are required in a VSAN environment than in a non-VSAN environment.
- B. When capacity planning where VSANs will be implemented, each VSAN must be capacity planned independently of all other VSANs.
- C. VSANs are over provisioned separately to provide for capacity growth.
- D. Unused ports can easily be redeployed for other applications in other VSANs.

Answer: D

QUESTION 28

What are two MDS features that increase the efficiency of a multiple switch Fibre Channel fabric? (Choose two.)

- A. Port Channel
- B. CDP
- C. FCP
- D. FCC
- E. CUP

Answer: A, D

QUESTION 29

Your customer has implemented an IPS-8 for FCIP connectivity to remote sites. How can this customer prevent unauthorized hosts from connecting to the Cisco MDS 9000 fabric through the FCIP interfaces?

- A. Configure RADIUS authentication
- B. Configure IPsec encryption on the IPS-8
- C. Configure IP ACLs on the IPS-8
- D. Configure fabric binding on the IPS-8

Answer: C

QUESTION 30

Which Cisco MDS feature alleviates a head-of-line blocking condition when occasional bursts of traffic exceed the capacity of an end device to receive data?

- A. VOQs
- B. VSAN allowed list
- C. FCC
- D. QoS

Answer: A

QUESTION 31

What should you do to allow iSCSI hosts on multiple subnets to connect to a single GigE interface on an IPS module?

- A. configure multiple VSANs on the IPS module iSCSI interface
- B. configure QoS on the IPS module iSCSI interface
- C. configure QoS on the IPS module GigE interface
- D. configure VLAN sub interfaces on the IPS module GigE interface

Answer: D

QUESTION 32

Which tool requires the Cisco Fabric Manager Server License in order to operate?

- A. Cisco Performance Manager
- B. Cisco Fabric Manager
- C. Cisco SAN Extension Tuner
- D. Cisco Fabric Analyzer

Answer: A

QUESTION 33

What are two ways of preventing unauthorized hosts from connecting to the management interface of a Cisco MDS 9000 Family switch? (Choose two.)

- A. use SNMPv3 only
- B. configure IP ACLs
- C. configure management VSANs
- D. use digital certificates
- E. implement RBAC

Answer: B, D

QUESTION 34

Which Cisco MDS 9500 Series feature addresses the customer requirement for five nines (99.999-percent) availability?

- A. active and standby FC line cards
- B. virtual output queuing (VOQ)
- C. SSM card is installed in the switch
- D. nondisruptive software upgrades
- E. redundant fan cards

Answer: D

QUESTION 35

Which three of these Cisco storage and networking devices are optimized for use in FCIP SAN Extension implementations? (Choose three.)

- A. MDS 9216i Multilayer Fabric Switch
- B. IPS-8
- C. MDS 9120 Multilayer Fabric Switch
- D. MDS 9140 Multilayer Fabric Switch
- E. MPS-14/2
- F. SSM

Answer: A, B, E

QUESTION 36

Select three characteristics of the Cisco coarse wave division multiplexing (CWDM) solution.

- A. Multiplexes up to eight wavelengths across a single fiber pair
- B. Supports a maximum connection length of 220 kilometers
- C. Supports both linear and ring topologies
- D. Requires OADMs (optical add/drop multiplexers) to aggregate multiple wavelengths across the same fiber pair

E. Can be optically amplified to extend the distance characteristics

Answer: A, C, D

QUESTION 37

A customer has two data centers connected by dark fiber and also has a requirement for synchronous data replication between the data centers. If the data centers are 48 km apart, what is the most cost effective solution?

- A. CWDM
- B. IVR
- C. FSPF
- D. DWDM
- E. Native FC

Answer: A

QUESTION 38

What are three characteristics of OLTP storage traffic? (Choose three.)

- A. small I/O size
- B. large I/O size
- C. sustained throughput
- D. bursty throughput
- E. latency-sensitive
- F. not latency-sensitive

Answer: A, D, E

QUESTION 39

Which MDS 9000 feature provides protection against rogue hosts impersonating legitimate hosts?

- A. Port mode security
- B. DH-CHAP
- C. Fabric binding
- D. SSH

Answer: B

QUESTION 40

You are implementing an FCIP solution for SAN extension between two data centers using the Cisco MDS 9000 platform. For redundancy, there are two Metro Ethernet paths between the data centers. How can you specify the primary and secondary path for each FCIP tunnel?

- A. Configure OSPF routing on the IPS-8

- B. Configure EIGRP routing on the IPS-8
- C. Configure static routes on the PS-8
- D. Configure QoS on the IPS-8

Answer: C

QUESTION 41

Which SFP and media-type combination should you recommend for a high-speed 10-kilometer link between two Cisco MDS switches?

- A. 4-Gbps-LW, LC SFP, 50/125-micron multi-mode media
- B. 4-Gbps-LW, LC SFP, 62.5/125-micron multi-mode media
- C. 4-Gbps-LW, LC SFP, 9/125-micron single-mode media
- D. 4-Gbps-LW, LC SFP, 50/125-micron single-mode media

Answer: C

QUESTION 42

How are Cisco MDS 9000 distributed device aliases synchronized between all switches in the fabric?

- A. using the Cisco Fabric Services (CFS) feature
- B. using the Fabric Manager Import/Export Alias feature
- C. as part of fabric merge events
- D. using Fabric Manager Server only

Answer: A

QUESTION 43

A customer has deployed a number of Cisco MDS 9509 Multilayer Directors in its data center. Some of the directors were deployed with a pair of 4000W AC power supplies and some were deployed with a pair of 2500W AC power supplies, depending on their locations within the data center. The customer has a pool of spare 4000W power supplies. The power supplies to some or the directors have been configured in combined mode in order to support line card configuration. One of the 2500W power supplies to an MDS 9509 configured in combined mode fails. The administrator has no additional 2500W power supplies as spare. The administrator replaces the failed 2500W power supply with a 4000W power supply.

What will be the combined-mode power capacity of the MDS 9509 running on 220V AC power?

- A. 1300
- B. 2500
- C. 5000
- D. 6500

Answer: C

QUESTION 44

What is the principal cost advantage of a collapsed core SAN design compared to a core-edge design if each connects the same number of host and storage ports?

- A. fewer hops for a given exchange
- B. fewer long-wave SFPs
- C. fewer ISL connections
- D. fewer domains on the domain list
- E. fewer director-class switches

Answer: C

QUESTION 45

Which of the following is the recommended design practice for routing from Cisco MDS to remote SCSI host subnets?

- A. configure a default route on the IPS module
- B. configure a static route on the IPS module
- C. configure a dynamic IP routing protocol on the IPS module
- D. place the iSCSI hosts on the same subnet as the IPS module interface

Answer: B

QUESTION 46

Which two kinds of applications require sustained throughput and are sensitive to latency? (Choose two.)

- A. synchronous replication
- B. asynchronous replication
- C. OLTP
- D. tape backup
- E. e-mail

Answer: A, D

QUESTION 47

What are three advantages of a collapsed-core architecture? (Choose three.)

- A. This design provides the most efficient use of ports because no ports are consumed for ISLs.
- B. The absence of ISLs significantly decreases reliability' and manageability'.
- C. The absence of any oversubscription increases switch throughput.
- D. Since there are fewer available paths over which traffic may travel, FSPF values are higher.
- E. Ports can be scaled easily by adding hot-swappable blades without disrupting traffic.
- F. The highest performance is achieved by director-class switches, because the high-speed backplane provides low fixed latency between any two ports.

Answer: A, E, F

QUESTION 48

What is an advantage of Cisco MDS 9000 Distributed Device Alias Services over Fibre Channel aliases?

- A. Persist across switch reboots
- B. Stored on the management server, not on the switch
- C. Preserved when devices are moved between VSANs
- D. Simplify SAN migration operations

Answer: C

QUESTION 49

A customer has 12 hosts, each capable of a sustained I/O rate of 75 MBps. The customer wants to connect these hosts to the fabric with a 32-port line card. For optimal performance what is the maximum number of hosts that should be connected to any four-port, host-optimized quad?

- A. one
- B. two
- C. three
- D. four

Answer: C

QUESTION 50

Which two items are necessary when implementing a highly available SAN design? (Choose two.)

- A. redundant hardware
- B. localized data backups
- C. real-time fabric monitoring
- D. nondisruptive upgrades
- E. traffic engineering and QoS

Answer: A, D

QUESTION 51

A customer would like to deploy a low-cost solution to implement an asynchronous database replication application across a distance of 100 kilometers. Select the lowest-cost solution that will meet the requirements.

- A. CWDM
- B. DWDM
- C. FOIP

D. SONET/SDH

Answer: C

QUESTION 52

Which of the following designs would provide your customer with the highest performance and port utilization?

- A. multi-tier design
- B. collapsed core design
- C. core-edge design
- D. single-tier design

Answer: B

QUESTION 53

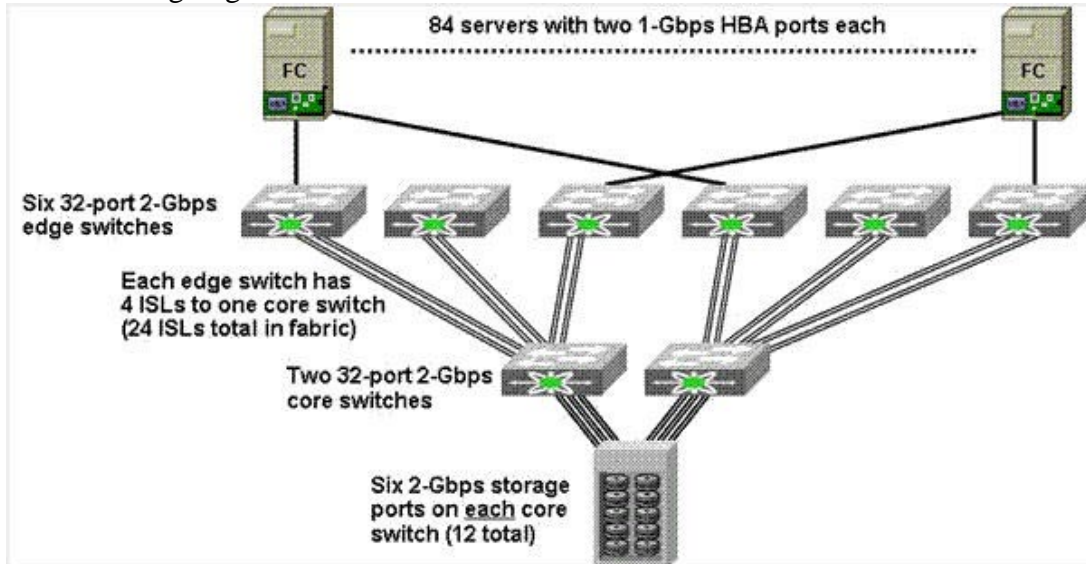
What is the best mechanism to use to isolate backup traffic from other mission-critical traffic?

- A. VSANs
- B. zones
- C. QoS
- D. IVR

Answer: A

QUESTION 54

You are designing a new SAN.



The existing SAN uses eight 32-port 2-Gbps Fibre Channel switches. Two of the switches are deployed as core switches, and the remaining six switches are deployed as edge switches. Each edge switch has two ISLs to each of the two core switches. The disk array has twelve 2-Gbps Fibre Channel ports. Each of the 64 servers has a dual-port 1-Gbps Fibre Channel HBA.

Which Cisco MDS 9000 configuration would improve performance?

- A. two Cisco MDS 9216 switches, with two 48-port Fibre Channel line cards in each switch
- B. two Cisco MDS 9506 switches, with three 32-port Fibre Channel line cards in each switch
- C. two Cisco MDS 9506 switches, with one 16-port Fibre Channel line card and two 48-port Fibre Channel line cards in each switch
- D. two Cisco MDS 9513 switches, with two 48-port Fibre Channel line cards in each switch

Answer: C

QUESTION 55

Your Cisco MDS 9509 configuration requires 2000 watts of power and is configured with two 2500W power supplies. If 110V power is provided to the switch, in which power mode does the switch operate?

- A. The director will operate in redundant mode only.
- B. The director will operate in combined mode only.
- C. The director will operate in redundant mode or combined mode
- D. The director cannot operate with 110V power

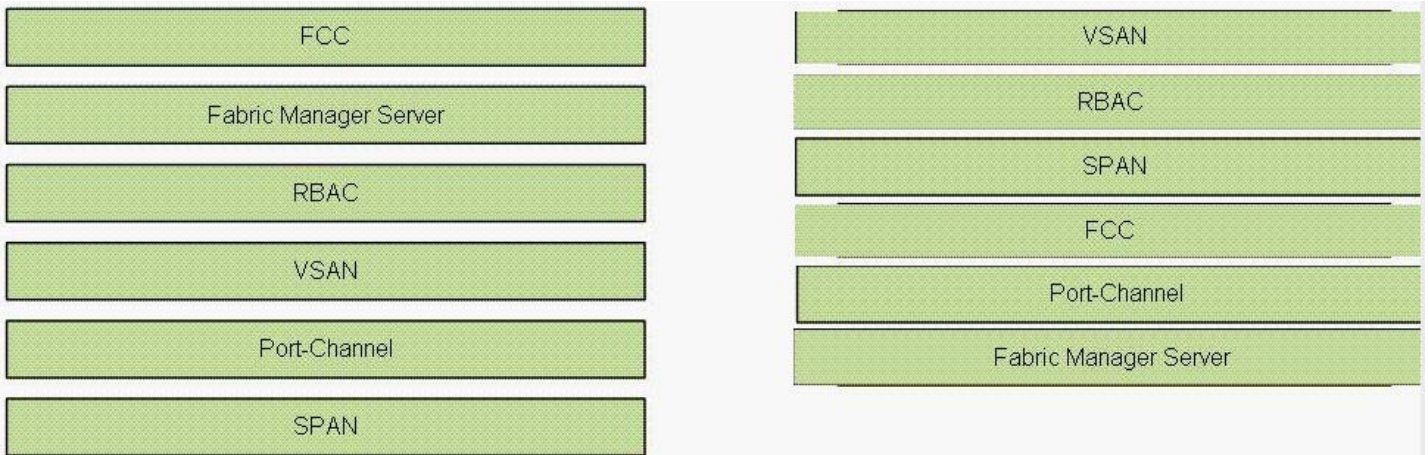
Answer: B

QUESTION 56

Match the Cisco Value Added feature to the potential issue it would most likely solve.

FCC	SAN islands
Fabric Manager Server	distributed management
RBAC	fabric login problems
VSAN	network congestion
Port-Channel	low network bandwidth
SPAN	inconsistent view of network topology

Answer:



QUESTION 57

What are three benefits of storage consolidation? (Choose three.)

- A. management costs are reduced, since fewer people are needed to administer the common management applications
- B. bandwidth demands on the network are reduced
- C. corporate data is more accessible
- D. Fibre Channel is no longer needed to transport traffic
- E. existing disk space is utilized more effectively

Answer: A, C, E

QUESTION 58

Which two of these statements correctly identify how Cisco MDS Series switches increase the overall resiliency of SAN extension? (Choose two.)

- A. VSANs and IVR eliminate the potential disruption of a WAN failure.
- B. VSANs and IVR increase reliability by combining control traffic and data traffic over the WAN.
- C. Parallel tunnels and PortChannels prevent any VSAN or IVR in the local fabric from failing.
- D. PortChannels and VSANs can be used with FCIP to provide end-to-end redundancy and load balancing.
- E. Recovery at the PortChannel level, instead of at the FSPF routing level, is non-disruptive.

Answer: D, E

QUESTION 59

A customer has recently deployed a number of Cisco MDS 9509 Multilayer Directors in a new data center. At the time of deployment, it was discovered that 110V AC power circuits had been installed instead of the high-voltage 220V AC circuits that had been ordered. The customer decided to install one of the directors and use the 110V AC circuit. The MDS 9509 is configured with two 2500W AC power supplies. The power supplies are configured in redundant mode.

What is the redundant power capacity of the MDS 9509 in this scenario?

- A. 1300
- B. 2500
- C. 2600
- D. 5000

Answer: A

QUESTION 60

Which three Fibre Channel switch features are unique to Cisco's MDS 9000 Series switches?

(Choose three.)

- A. LUN Zoning
- B. Read-Only Zones
- C. Internet-Switch Link
- D. Fibre Channel Congestion Control
- E. FC Link Aggregation
- F. FSPF

Answer: A, B, D