



**Exam** : **EMC E20-322**

**Title** : Technology Architect Solutions  
Design

**Update** : Demo

1. A customer is deploying a new Microsoft Exchange environment and has requested assistance with the associated disk design. They are deploying Exchange for 850 users with an average of 3 I/Os per user. They expect a 60% read and 40% write distribution.

The customer would like to know the number of disks required for both RAID 5 and RAID 1/0 DMX configurations with 15k rpm drives. How many disks are required for each configuration type?

- A. RAID 5 28 and RAID 1/0 18
- B. RAID 5 31 and RAID 1/0 20
- C. RAID 5 38 and RAID 1/0 24
- D. RAID 5 43 and RAID 1/0 28

Answer: A

2. A customer plans to create two regional offices that are between 800 and 2,000 km away from their main data center. Each regional office will have a data center that will serve four to six branch offices between 30 and 50 km away.

At the close of business each evening the customer will shut down the application and transmit changes to each regional office. The amount of new information sent from the head office each night will vary from 0.5 and 1.5 GB. Later each night, an application at the regional offices will read the data from the head office and generate approximately 50 MB of new rate information appropriate for its branch offices.

What is the most cost-effective EMC solution?

- A. 1. Configure CLARiiON arrays in each office.  
2. Use MirrorView/A and T3 networks for all data transfers.
- B. 1. Configure Symmetrix arrays in the head office and CLARiiONs in the regional offices.  
2. Use OC-3 networks to transmit the same master copy of data from the head office to the regional offices using Open Replicator.  
3. At the regional offices, create a snap of the data received and transmit the changes to the branch offices using SAN Copy.
- C. 1. Configure Symmetrix arrays at all the main data centers and CLARiiONs at the regional and branch offices.  
2. Use OC-3 network links between the main data centers.  
3. Use DS-3 between the regional and branch offices.  
4. Use SRDF/DM for data transfer in each case.
- D. 1. Configure Symmetrix arrays at the head office and regional offices.  
2. Configure CLARiiONs at the branch offices.  
3. Use SRDF/DM and T1 network links between the head office and regional offices.  
4. Use Open Replicator incremental offline push to distribute rate information to the branch offices using T1 network links.

Answer: D

3. A customer decided to consolidate their storage onto a Symmetrix. They have a mix of Windows and UNIX servers and want one copy of data for creating backups each night. They also want another copy to be made during the day. This second copy will be a standby to perform a fast recovery in the event of data corruption.

The initial survey of the customer environment shows that the read/write ratio of their application is 1. 2

during the day and 5. 1 at night. The application appears to be highly sensitive to disk response times during the day.

Which initial solution should be considered?

- A. TimeFinder/Clones for the standby copy and TimeFinder/Mirror BCVs for backups at night
- B. TimeFinder/Snap for the standby copy and TimeFinder/Clone for backups at night
- C. TimeFinder/Snap for the standby copy and TimeFinder/Mirror BCVs for backups at night
- D. TimeFinder/Mirror BCVs for the standby copy and TimeFinder/Snaps for backups at night

Answer: D

4. A customer has implemented a second Brocade director into their environment. They have moved several hosts and one of their two storage arrays onto the new director. When a large batch cycle was run, the customer experienced queuing on the directors when previously there was none.

The customer discovered the following during their analysis of the issue.

The hosts running the batch cycle used storage from both arrays.

The only LUNs having problems came from the array attached to the new director.

When the batch process was re-run with all LUNs made available through the original director, no problems were encountered.

What would you recommend to solve the performance problem?

- A. Add departmental switches to the fabric, creating a core/edge design
- B. Change FSPF costs
- C. Implement additional Brocade ISLs
- D. Utilize Brocade ISL Trunking to optimize the ISL traffic

Answer: D

5. You are designing an EMC ControlCenter solution for a new customer to reduce the overall storage and management costs. The customer would like management and reporting on a variety of hosts and storage systems. All managed objects are located in one data center.

Which factors must you consider when designing an EMC ControlCenter infrastructure?

- A. Network firewall type, number of hosts, and total storage capacity
- B. Network firewall type, number of IP switches, and number of Fibre Channel switches
- C. Network latency, number of Exchange servers, and number of Oracle database
- D. Network latency, number of hosts, and number of arrays

Answer: D

6. A customer has a SAN fabric consisting of several MDS-9509s for host to disk array connectivity.

They have purchased a Fibre Channel tape library and want to implement LAN-free backups. You have proposed making a tape VSAN on the existing MDS infrastructure and have recommended that they use QoS so that tape I/O does not use ISL bandwidth at the expense of disk I/O.

Which license is needed on the MDS directors?

- A. Enterprise package
- B. Fabric Manager Server
- C. Storage Services Enabler package
- D. Tape Write Acceleration package

Answer: A

7. Using SAN Copy, a source Windows LUN of 100 GB has been copied to a 200 GB target LUN. After assigning the target LUN to the new host and running Disk Administrator to recognize the drive, what must be done to the Windows partition on the new host to see the LUN as 100 GB?

- A. Nothing; the partition will be seen as 100 GB immediately
- B. Run diskpart and set the partition size to 100 GB
- C. Run the diskpar command and set the partition size to 100 GB
- D. Run the format command and set the partition size to 100 GB

Answer: A

8. A prospective customer has presented you with multiple applications. All applications have high write activity levels and unpredictable growth patterns. The applications are currently hosted on direct-attached storage in a RAID 1 configuration. They are concerned with making too many changes at one time in their environment.

The prospect has asked you to justify your recommendation of RAID 1/0 on the CLARiiON configuration you are proposing. How do you respond to the request?

- A. RAID 1 has a higher write penalty than RAID 1/0
- B. RAID 1 is less flexible for growing LUNs than RAID 1/0
- C. RAID 1 is unavailable in current CLARiiON configurations
- D. RAID 1 LUNs are unable to utilize write cache

Answer: B

9. After you have a fully replicated copy on the BCVs that contain an Oracle database, which two files need to be incrementally copied in order to have a consistent database?

- A. Archive log and redo files
- B. Control and archive log files
- C. Data and redo files
- D. Redo and control files

Answer: D

10. A customer currently manages their DMX environment with symcli within the storage group.

They are instituting a third-shift operations group with minimal symcli experience. Third shift will perform storage tasks such as device creation, device mapping, and LUN masking.

Which solution fits this expanding business requirement and organizational change?

- A. StorageScope with StorageScope FLR
- B. StorageScope without StorageScope FLR
- C. Symmetrix Management Console
- D. Symmetrix Manager

Answer: C

11. A customer is using SnapView snapshots for their nightly backups of a database that has several LUNs for data and for logs across both CX3-80 SPs. The SnapView process is scripted to run on the

production host; however, the application cannot be quiesced without downtime.

How can the downtime be eliminated while still ensuring a backup that can be restarted?

- A. Create the snapshots with separate simultaneous scripts
- B. Flush the file systems with admnsnap
- C. Use consistent SnapView session start
- D. Use SnapView consistency groups

Answer: C

12. A customer wants to implement one EMC Disk Library at their primary data center and one EMC Disk Library at their disaster recovery site with IBM Tivoli Storage Manager (TSM) as the backup application. A small subset of the primary data needs to be transferred to a disaster recovery site where it will eventually expire without TSM involvement.

What is a recommended feature to use with EMC Disk Library to transfer data to the disaster recovery site?

- A. Active Tape Migrator
- B. Compression
- C. Remote Copy
- D. Tape Capacity-on-Demand

Answer: C

13. A Rainfinity administrator is interested in protecting data in the event of an outage. Currently there are two sites approximately 100 miles (160.93 kilometers) apart.

Which configuration option offers the highest level of protection for the administrator?

- A. Cluster configuration
- B. Fault tolerance
- C. Global Name Space
- D. Synchronous replication

Answer: D

14. You are working with a customer for whom high availability has become a priority because of recent outages due to single points of failure in their storage infrastructure. Which components are the most appropriate for the design of the SAN?

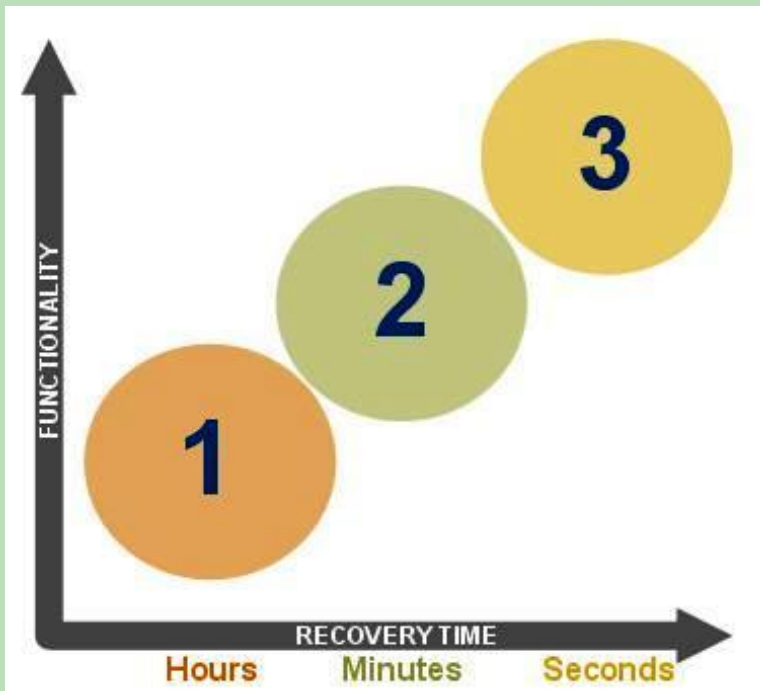
- A. Dual HBAs and full mesh fabric
- B. Dual HBAs and mirrored core-edge fabric
- C. Single HBAs and full mesh fabric
- D. Single HBAs and mirrored core-edge fabric

Answer: B

15. Click the Exhibit button.

A customer is evaluating a Celerra as a NAS solution for their environment. They are concerned about RTO/RPO goals on a disk level and would like to know what features the Celerra offers.

Based on recovery time, what is the correct order that you should present to the customer?



- A. Celerra Replicator, Celerra SnapSure, Celerra SRDF/S
- B. Celerra Replicator, Celerra SRDF/S, Celerra SnapSure
- C. Celerra SnapSure, Celerra Replicator, Celerra SRDF/S
- D. Celerra SRDF/S, Celerra Replicator, Celerra SnapSure

Answer: C

16. A customer has a SAN fabric consisting of several MDS-9509s for host to disk array connectivity. They have purchased a Fibre Channel tape library and want to implement LAN-free backups. You have proposed making a tape VSAN on the existing MDS infrastructure. The customer is concerned that the additional traffic on the shared ISLs will consume bandwidth needed by the disk VSAN. Which feature should you propose to address the customer's concern?

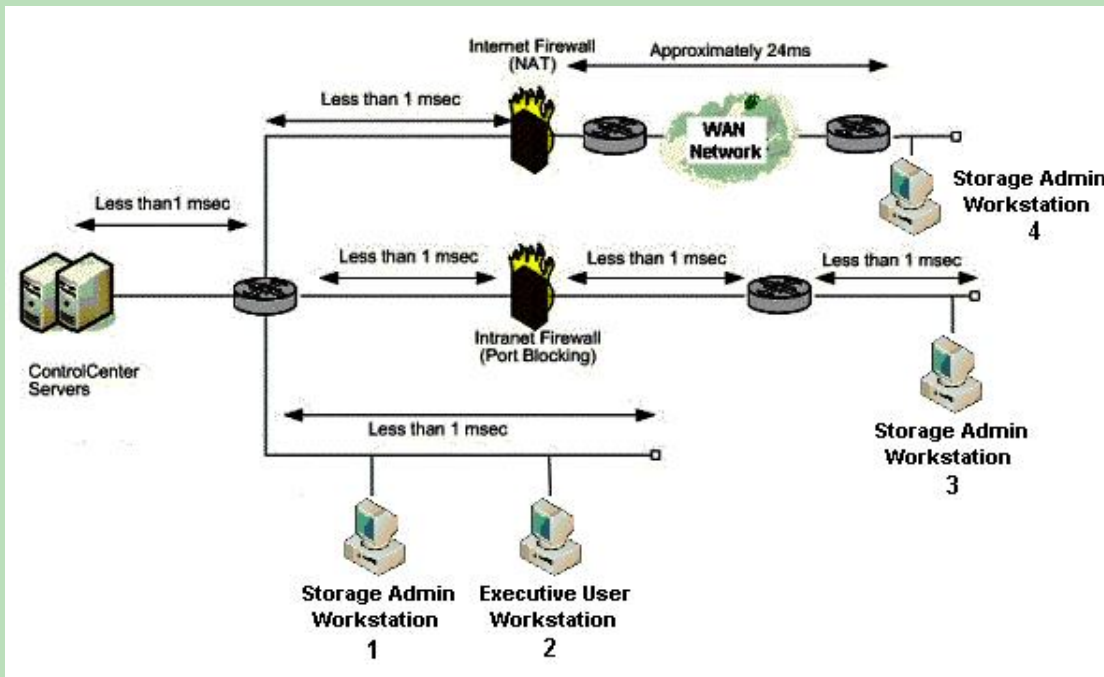
- A. Fibre Channel Compression
- B. Fibre Channel Tape Acceleration
- C. Port Channeling
- D. Quality of Service

Answer: D

17. Click the Exhibit button.

A customer has a network that uses routers and various types of firewalls. The CIO at Executive User Workstation #2 wants to occasionally view the EMC ControlCenter alert status of the environment but does not otherwise want management capabilities.

Which EMC ControlCenter user interface should you recommend to the user?



- A. EMC ControlCenter API
  - B. Java Console
  - C. StorageScope
  - D. Web Console
- Answer: D

18. A customer is planning to migrate all their high-performance cluster servers from a non-EMC array to a DMX. There will also be a new SAN for the DMX. For migration purposes, one DMX-FA pair will be connected to the non-EMC SAN. The server will be re-cabled to the DMX SAN during the data migration and after coming online, performance must be the same. Which migration method is appropriate for this project?

- A. Host-based mirroring
  - B. Open Migrator/LM
  - C. Open Replicator Cold Pull
  - D. Open Replicator Hot Pull
- Answer: C

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Answer: D

20. A customer requires a low-cost solution that is good for moving data from one Symmetrix to another and does not have a need for disaster recovery. Which solution meets their requirements?

- A. SRDF/A
- B. SRDF/AR
- C. SRDF/CR
- D. SRDF/DM

Answer: D

21. A customer is interested in archiving data for a custom-developed application. They currently have no archive platform in place for the information used by this application and are extremely concerned about performance. They would like the archive to be designed with the fastest sustainable long-term performance. There are no regulatory concerns in this environment.

Which EMC Centera design will meet this goal?

- A. Dedicated Access Nodes, GM naming scheme, and CPM protection
- B. Dedicated Access Nodes, GM naming scheme, and CPP protection
- C. Storage on Access Node, M++ naming scheme, and CPM protection
- D. Storage on Access Node, M++ naming scheme, and CPP protection

Answer: A

22. A customer currently has an NSX attached to a Symmetrix and would like to discuss disk-based recovery options. They have a design goal that requires a copy of the file system be accessible read/write. This copy is independent of the production file system. In addition, the customer is out of capacity.

What is your recommendation?

- A. Use Celerra SnapSure; this feature does not require any additional disks
- B. Use Celerra SnapSure; this feature requires additional disk space
- C. Use Celerra TimeFinder F/S; this feature does not require any additional disks
- D. Use Celerra TimeFinder F/S; this feature requires additional BCVs

Answer: D

23. A customer's network security engineer has attended a lecture on the various security weaknesses of storage protocols. The security engineer is concerned about WWN spoofing attacks against their DMX-3. Which Symmetrix feature could you discuss that will reduce the customer's concerns?

- A. LUN masking
- B. Data Migration Estimation Tool
- C. Data Migration Solution Selection Tool
- D. Data Migration Solutions Guide

Answer: B

24. You have been asked to design a new centralized backup solution for a customer. The customer sent a list with the number of servers, amount of data, daily change rate, annual growth rate, and information about the backup policy. The customer needs to satisfy their operational restore requests as



quickly as possible.

You have decided to design a backup-to-disk solution, directing all backups to disk and then staging the data to tape after operational restore needs are satisfied. In order to define the retention period on disk, what is an important piece of information you will need to analyze?

- A. Data mobility requests over time
- B. Frequency of restore requests over time
- C. Recovery point objective
- D. Type of data

Answer: B

25. You must design a backup solution for an existing Celerra NS80 customer. The customer has decided that the expense of expanding their tape hardware infrastructure to support the additional load is not justified because the technology is not reliable and is outdated.

The customer's decision criteria are.

1. Performance
2. Least disruption to the production environment
3. Ease of maintenance

Which alternate solution should you use to back up the Celerra?

- A. Add a second NS80 with FC disks and replicate to it
- B. Add a second NS80 with SATA disks and replicate it
- C. Add FC disks to the NS80 and back up using VTLUs
- D. Add SATA disks to the NS80 and back up to disk

Answer: C

26. A customer has a DMX-3 that is replicated using SRDF/A and is experiencing SRDF/A drops due to intermittent network link loss. Which features can be designed into the existing environment to mitigate RPO exposure?

- A. Dynamic Cache Partitioning and System Buffer Extension
- B. Dynamic write pending ceiling and Symmetrix File System
- C. Quality of Service and SRDF Mode Change
- D. SRDF/A Transmit Idle and Delta Set Extension

Answer: D

27. One design goal for storage security is to map server access to storage. This is based on the security classification of the data utilized by the particular server. As a best practice, which level of granularity should be used to enforce a particular security access level within a storage device?

- A. Disk director port
- B. Individual disk device
- C. LUN
- D. Storage interface port

Answer: C

28. A customer has been running a CX3-40 for the past year to present SAN LUNs. The customer wants

to use network shares for a number of clients. You want to propose a new NS40G for the account. Which information must you have to ensure that the proposed solution will meet the customer's needs?

- A. Celerra Health Check
- B. EMCGrab
- C. EMCReporte
- D. Pre-Upgrade Health Check

Answer: B

29. A customer has a DMX3000 at Headquarters Site X. The customer currently runs two applications on the DMX3000, both of which need to be replicated for disaster recovery (DR) purposes. The customer cannot tolerate any data loss. The first application needs to be replicated to Site Y, which is 20 miles away. The second application needs to be mirrored to a different site, Site Z, which is 15 miles away.

Which SRDF solution should you suggest?

- A. Concurrent SRDF/A to Sites Y and Z
- B. Concurrent SRDF/S to Sites X and Z
- C. SRDF/S to Site Y and SRDF/DM to Site Z
- D. SRDF/S to both sites

Answer: D

30. A customer has just heard about disk drives with built-in encryption capabilities. The customer is very excited about encrypting data at rest on their storage arrays. Their applications process critical data and have high-availability requirements. The customer does not want to modify any of their existing applications to take advantage of encryption capabilities.

Which alternative technology should you propose that will offer the most protection for their data?

- A. Cisco Storage Media Encryption
- B. Data Loss Protection Suite
- C. PowerPath with Encryption
- D. RSA File Manager

Answer: C



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