E10-001 Q&As

Information Storage and Management Exam Version 2

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QUESTION 1

Consider a storage array with two LUNs that store data for the engineering and marketing departments One LUN is masked to the engineering department; the second LUN is masked to the marketing department.

What is a benefit of this architecture?

A. Both departments can access all the data

B. Both departments can replicate all the data

C. Data availability and performance is increased

D. Risk to data integrity and security is reduced

Correct Answer: D

LUN Masking

LUN masking is a process that provides data access control by defining which LUNs a host can access. The LUN masking function is implemented on the storage array. This ensures that volume access by hosts is controlled appropriately,

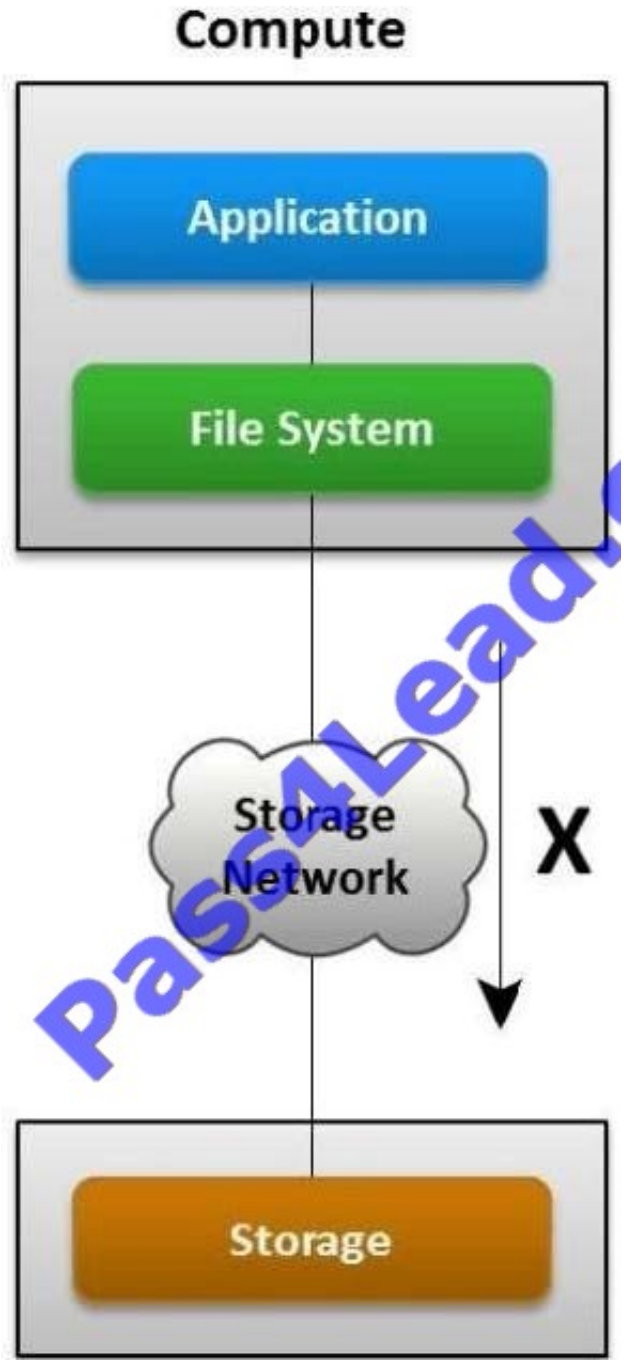
preventing unauthorized or accidental use in a shared environment.

For example, consider a storage array with two LUNs that store data of the sales and finance departments. Without LUN masking, both departments can easily see and modify each other\\'s data, posing a high risk to data integrity and security.

With LUN masking, LUNs are accessible only to the designated hosts. EMC E10-001 Student Resource Guide. Module 4: Intelligent Storage System

QUESTION 2

Refer to the exhibit.



Which type of host access to storage does `X\\' represent in the exhibit?

A. Block-level

B. File-level

C. Object-level

D. Web-based

Correct Answer: A

QUESTION 3

What is prevented using RAID technology?

A. Data loss

B. Host Bus Adapter failures

C. Security breach

D. Switch failure

Correct Answer: A

Today\\'s data centers house hundreds of disk drives in their storage infrastructure. Disk drives are inherently susceptible to failures due to mechanical wear and tear and other environmental factors, which could result in data loss. The greater the number of disk drives in a storage array, the greater the probability of a disk failure in the array. For example, consider a storage array of 100 disk drives, each with an average life expectancy of 750,000 hours. The average life expectancy of this collection in the array, therefore, is 750,000/100 or 7,500 hours. This means that a disk drive in this array is likely to fail at least once in 7,500 hours. RAID is an enabling technology that leverages multiple drives as part of a set that provides data protection against drive failures. In general, RAID implementations also improve the storage system performance by serving I/Os from multiple disks simultaneously. Modern arrays with flash drives also benefit in terms of protection and performance by using RAID.

EMC E10-001 Student Resource Guide. Module 3: Data Protection - RAID

QUESTION 4

Which cache algorithm will optimize a storage array\\'s I/O response time if sequential access is detected?

A. Flushing

B. Least recently used

C. Read ahead

D. Write-through

Correct Answer: C

Read Operation with Cache A prefetch or read-ahead algorithm is used when read requests are sequential. In a sequential read request, a contiguous set of associated blocks is retrieved. Several other blocks that have not yet been requested by the host can be read from the disk and placed into cache in advance. When the host subsequently requests these blocks, the read operations will be read hits. This process significantly improves the response time experienced by the host. The intelligent storage system offers fixed and variable prefetch sizes. In fixed prefetch, the intelligent storage system prefetches a fixed amount of data. It is most suitable when host I/O sizes are uniform. In variable prefetch, the storage system prefetches an amount of data in multiples of the size of the host request. Maximum prefetch limits the number of data blocks that can be prefetched to prevent the disks from being rendered busy with prefetch at the expense of other I/Os.

EMC E10-001 Student Resource Guide. Module 4: Intelligent Storage System

QUESTION 5

Which data deduplication method increases the chance of identifying duplicate data even when there is only a minor difference between two documents?

A. Variable-length segment

B. Single-instance

C. File level

D. Fixed-block

Correct Answer: A

Data Deduplication Methods

File-level deduplication (also called single-instance storage) detects and removes redundant copies of identical files. It enables storing only one copy of the file; the subsequent copies are replaced with a pointer that points to the original file.

File-level deduplication is simple and fast but does not address the problem of duplicate content inside the files. For example, two 10-MB PowerPoint presentations with a difference in just the title page are not considered as duplicate files,

and each file will be stored separately.

Subfile deduplication breaks the file into smaller chunks and then uses specialized algorithm to detect redundant data within and across the file. As a result, subfile deduplication eliminates duplicate data across files. There are two forms of

subfile deduplication: fixedlength block and variable-length segment. The fixed-length block deduplication divides the files into fixed-length blocks and uses a hash algorithm to find the duplicate data. Although simple in design, fixed-length

blocks might miss many opportunities to discover redundant data because the block boundary of similar data might be different. Consider the addition of a person\\'s name to a document\\'s title page. This shifts the whole document, and all the

blocks appear to have changed, causing the failure of the deduplication method to detect equivalencies. In variable-length segment deduplication, if there is a change in the segment, the boundary for only that segment is adjusted, leaving the

remaining segments unchanged.

This method vastly improves the ability to find duplicate data segments compared to fixed-block.

EMC E10-001 Student Resource Guide. Module 10: Backup and Archive