

C9020-668.exam.70q

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C9020-668

IBM Storage Technical V1



Exam A

QUESTION 1

Which IBM XIV replication feature provides the ability for a remote target volume to be initialized without requiring the contents of the source volume to be rereplicated over an inter-site link?

- A. Offline Initialization
- B. Quick Initialization
- C. Synchronous Replication
- D. Asynchronous Replication

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

When an XIV mirror coupling is first activated, all actual data on the source is either copied to the destination (normal initialization) or verified to be on the destination, and only changed data is copied (offline initialization). This process is referred to as initialization. References: https://www.redbooks.ibm.com/redbooks/pdfs/sg247759.pdf, page 83

QUESTION 2

What is the complete source of information for power, cooling, and floor space requirements for IBM tape products?



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- A. Preinstall TDA checklist
- B. Product announcement letters
- C. Installation and Planning Guide



D. IBM Storage System Interoperation Center

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

The Technical Delivery Assessment (TDA) pre-installation checklist and worksheets document provides several worksheets that the customer must complete for each XIV system.

References: https://www.ibm.com/support/knowledgecenter/en/STJTAG/com.ibm.help.xivgen3.doc/Gen3/PG/xiv_pln3overview.html

QUESTION 3

Which function provides a high availability feature with dual-site, active-active access to a volume in IBM Spectrum Virtualize?

A. Hypersite

B. Hyperledger

C. Hyper-Scale

D. HyperSwap

Correct Answer: D Section: (none) Explanation



Explanation/Reference:

You can create an IBM HyperSwap topology system configuration where each I/O group in the system is physically on a different site. When used with active-active relationships to create HyperSwap volumes, these configurations can be used to maintain access to data on the system when power failures or site-wide outages occur.

References: https://www.ibm.com/support/knowledgecenter/en/STVLF4_7.7.1/spectrum.virtualize.771.doc/svc_hyperswap_configuration.html

QUESTION 4

A customer wants to improve storage efficiency within a data center. The customer requires a low latency storage system that has a highly parallel architecture and comprehensive data reduction with pattern removal.

Which system should the technical specialist propose?

- A. IBM DS8886 HPFE
- B. IBM FlashSystem A9000RC. IBM FlashSystem V9000



D. IBM XIV with compression

Correct Answer: C Section: (none) Explanation

Explanation/Reference:

IBM FlashSystem A9000 is a highly parallel, all-flash storage solution for cloud-scale businesses:

Harness the performance of highly parallel architecture and IBM FlashCore technology in one innovative system
 Optimize storage economics with pattern removal, deduplication, and compression

Incorrect Answers:

B: IBM FlashSystem(R) A9000R is a grid-scale, all-flash storage platform.

References: https://www-01.ibm.com/common/ssi/rep_ca/7/872/ENUSAG16-0087/ENUSAG16-0087.PDF

QUESTION 5

Which solution provides virtualization, consolidation, and automation for a cloud deployment?

- A. IBM XIV with IBM Spectrum Protect
- B. IBM FlashSystem 900
- C. IBM Virtual Storage Center
- D. IBM Spectrum Accelerate

Correct Answer: C Section: (none) Explanation



Explanation/Reference:

IBM Virtual Storage Center is a storage virtualization platform and a storage management solution for cloud-based and software-defined storage. Virtual Storage Center enables organizations to monitor, automate and analyze storage.

Incorrect Answers:

B: IBM FlashSystem 900 all-flash storage arrays accelerate applications in mission-critical environments.

D: Use IBM Spectrum Accelerate to build a flexible, cost-effective cloud environment: deploy on any x86 server.

References: http://www-03.ibm.com/software/products/en/ibm-virtual-storage-center

QUESTION 6

A customer looking for an all-flash solution is evaluating IBM products. The primary concern for the customer is rapid growth of its database environment.



Which IBM flash solution should the specialist recommend to control capacity utilization?

- A. IBM XIV Gen3 with SSD
- B. IBM DS8886 HPFE
- C. IBM Flashsystem A9000
- D. IBM FlashSystem 900

Correct Answer: D Section: (none) Explanation

Explanation/Reference:

IBM FlashSystem 900 is designed to accelerate the applications that drive business – like those using an Oracle Database. IBM FlashSystem 900 can scale usable capacity from as low as 2 TB to as much as 57 TB in a single system.

FlashSystem 900 delivers Tier 0 top application performance with up to 1.1 million 100% random read IOPS and 600,000 100% random write IOPS.

References: https://www.ibm.com/us-en/marketplace/flash-storage

QUESTION 7

A customer is looking to take advantage of data reduction capabilities of the IBM SAN Volume Controller.

Which tool should the technical specialist use?

- A. Capacity Magic
- B. Comprestimator
- C. Disk Magic
- D. IBM Storage Tier Advisor Tool

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

Capacity Magic calculates the effective storage capacity of your current and future IBM Disk Subsystems through an easy-to-use graphical dialog. This tool is available to IBM Business Partners.

Incorrect Answers:



B: The Comprestimator utility uses advanced mathematical and statistical algorithms to perform the sampling and analysis process in a very short and efficient way. The utility also displays its accuracy level by showing the maximum error range of the results achieved based on the formulas it uses. The utility runs on a host that has access to the devices that will be analyzed, and performs only read operations so it has no effect whatsoever on the data stored on the device.

C: Disk Magic provides you with a thorough understanding of your current Disk Subsystem performance and enables you to make better purchase and configuration decisions.

D: The IBM Storage Tier Advisor Tool predicts whether the addition of Solid State Drive (SSD), Enterprise Drive and Nearline Drive capacity in conjunction with the Easy Tier function.

References: https://www.codeweavers.com/compatibility/crossover/ibm-capacity-magic

QUESTION 8

Which component of IBM Spectrum Scale enables data to be imported from several servers at the same time?



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- A. HDFS Transparency connector
- B. IBM Spectrum Protect integration
- C. Cloud Object Storage support
- D. Multi-Cluster feature

Correct Answer: B Section: (none) Explanation

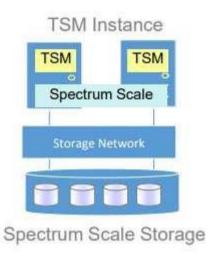
Explanation/Reference:

With Spectrum Scale multiple Spectrum Protect instances use the same storage • Capacity and performance management is seamless within a global name space

Scalability is seamless and transparent



• File system replication is integrated with Spectrum Scale for different platforms • Central administration of TSM storage



Note: Multiple Spectrum Protect (TSM) instances store DB and storage pools in a Spectrum Scale file system (GPFS) • Spectrum Scale provides global name space for all Spectrum Protect instances

- Instances share all file system resources
 - Spectrum Protect instances run on cluster nodes accessing the file system and disk directly
 - Spectrum Scale file systems balances the workload and capacity for all TSM instances on disk
 - Provides standardized, scalable and easy to use storage infrastructure for the multiple instances

Incorrect Answers:

A: IBM Spectrum Scale HDFS transparency offers a set of interfaces that allows applications to use HDFS Client to access IBM Spectrum Scale through HDFS RPC requests.

References: https://www-03.ibm.com/support/techdocs/atsmastr.nsf/5cb5ed706d254a8186256c71006d2e0a/3264fd1e3716c13586257f460072493d/\$FILE/SpectrumProtect on Spectrum%20Scale Intro v6.3.pdf

QUESTION 9

A customer asks about the implication of replacing a current tape library with a single disk-only IBM TS7760.

Which key point should the technical specialist address?

A. Validate that the new virtual library emulates the correct drive type.



- B. Confirm the compression ratio on the tapes to calculate the disk space needed.
- C. Identify the current provision for tape vaulting and disaster recovery.
- D. Check whether current tape media is encrypted.

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

The TS7700 is a member of the TS line of products and builds upon previous implementations of tape storage virtualization.

For example, the TS1155 Tape drive is not compatible with IBM TS7700 or Enterprise Tape Control Unit environments.

References: http://www.redbooks.ibm.com/redbooks/pdfs/sg245946.pdf, IBM Tape Library Guide for Open Systems (August 2017), page 127

QUESTION 10

A customer wants to replace an existing HDS system connected to an IBM z/OS mainframe with a storage solution to reduce cooling requirements and potential of mechanical failure.

Which storage solution should the technical specialist recommend?

- A. IBM FlashSystem 900
- B. IBM FlashSystem V9000
- C. IBM DS8886 HPFE
- D. IBM DS8884 with SAS drives

Correct Answer: D Section: (none) Explanation

Explanation/Reference:

IBM invented the z Systems I/O architecture. Systems, SAN and DS8880 are jointly developed.

QUESTION 11

A customer has existing SAP HANA production nodes connected to an IBM Elastic Storage Server (ESS). The customer needs to scale out additional ESS nodes to maintain the high I/O throughput requirement.

Which type of nodes should be proposed?

A. Storage nodes with SAS drives



B. Storage nodes with SSD drives

C. Protocol nodes with SAS drives

D. Protocol nodes with SSD drives

Correct Answer: B Section: (none) Explanation

Explanation/Reference:

A scale-out NAS system is comprised of multiple NAS storage nodes with internal or external storage. Each NAS storage node represents the same file systems to user applications. Data is stored across all NAS storage nodes, and adding capacity can be achieved by adding more storage nodes.

References: https://www-03.ibm.com/systems/storage/spectrum/scale/scale-out-nas.html

QUESTION 12

An IBM DS8886 customer wishes to replicate data from the primary data center to a new secondary data center 310 miles (500km) away while maintaining a low recovery point objective.

Which offering should the technical specialist recommend?

A. SnapMirror

B. Metro Mirror

C. Global Mirror

D. FlashCopy

Correct Answer: C Section: (none) Explanation



Explanation/Reference:

Global Mirror is a long-distance remote copy function across two sites using asynchronous technology. Global Mirror processing is designed to provide support for virtually unlimited distance between the local and remote sites, with the distance typically limited only by the capabilities of the network and the channel extension technology.

Incorrect Answers:

B: Metro Mirror provides real-time mirroring of logical volumes between two DS8000 storage units that can be located up to 300 km from each other.

References: https://www.ibm.com/support/knowledgecenter/en/HW213 7.1.0/com.ibm.storage.ssic.help.doc/f2c copysgintro 1xiohq.html

QUESTION 13



A customer is considering a storage consolidation project. The IBM technical specialist wants to show how the IBM solution will be more cost-effective than the competitors.

Which tool should the technical specialist use?

- A. IBM Compresimator
- B. IBM TCOnow!
- C. IBM Disk Magic
- D. IBM Spectrum Scale Discovery Checklist

Correct Answer: B Section: (none) Explanation

Explanation/Reference:

TCOnow! for Disk is designed for storage architects to compare the initial costs and TCO of the most popular arrays from EMC, IBM, HPE, NetApp and Hitachi.

Incorrect Answers:

A: Comprestimator is a command line host-based utility that can be used to estimate an expected compression rate for block devices.

References: http://cioview.com/disk.html

QUESTION 14

A customer needs to bridge two Fibre Channel SANs that are 100 miles (161 km) apart.

Which device is needed at both sites?

- A. Multiprotocol router
- B. 16 Gb Fibre Channel switch
- C. PEX extender
- D. 10 Gb Ethernet Layer 2 switch

Correct Answer: A Section: (none) Explanation

Explanation/Reference:



For example, The IBM System Storage SAN06B-R multiprotocol router entry-level multiprotocol extension router designed to connect two SANs over a wide distance using the Internet as the interconnection fabric (upgrades to enterprise-level functions are available). References:

https://www.ibm.com/storage/san

QUESTION 15

What should a technical specialist request to provide latency analysis for an Oracle DB system and help predict performance impact of IBM Flash Systems?

- A. DB Trace report
- B. nmon analyzer report
- C. Perfrep report
- D. AWR report

Correct Answer: D Section: (none) Explanation

Explanation/Reference:

IBM FlashSystem offers customers the ability to speed up databases to rates that may not be possible even by over provisioning the fastest spinning disk arrays. You can use native Oracle Database tools to determine the effects that flash storage can have on Oracle Database environments.

Oracle utilities—Statspack and now Automatic Workload Repository (AWR) reports —provide database administrators with detailed information concerning a snapshot of database execution time. This snapshot provides statistics on wait events, latches, storage input and output volumes, and timings as well as various views of memory and SQL activities.

References: https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=ORW03038USEN

QUESTION 16

A customer has a requirement to add high availability to all systems in the data center. It has an IBM TS4500 tape Library in use.

What must be added to the library to meet the high availability requirement?

- A. Additional convenience I/O stations
- B. Redundant Library Managers
- C. Dual accessors
- D. Dual grippers

Correct Answer: C Section: (none) Explanation



Explanation/Reference:

When an optional second accessor is installed, the TS4500 tape library features high availability (HA) which enhances the library performance.

References: https://www.ibm.com/support/knowledgecenter/en/STQRQ9/com.ibm.storage.ts4500.doc/ts4500 ipg dual accessors.html

QUESTION 17

A solution architect has determined the amount of spindles needed to satisfy performance and Raid level requirements for an IBM DS8886. Which tool provides information on the number of spare drives included in the system?

- A. STAT
- B. Capacity Magic
- C. Disk Magic
- D. e-config

Correct Answer: B Section: (none) Explanation

Explanation/Reference:

Capacity Magic is an easy-to-use tool to help with capacity planning for physical and usable capacities based on installation drive capacities and quantities in intended RAID configurations.

References: IBM DS8880 Architecture and Implementation (Release 8.2.1), page 82

QUESTION 18

A customer has multiple data types and is looking for space savings on the storage environment.

Which data type can benefit from Real-time Compression?

- A. Media files
- B. Virtual servers
- C. Compressed database files
- D. Encrypted user documents

Correct Answer: B Section: (none) Explanation



Explanation/Reference:

References: IBM Real-time Compression in IBM SAN Volume Controller and IBM ..., Volume 7000, page 4

QUESTION 19

A customer with a block storage from a competitor desires an OpenStack ready platform for storage management.

Which solution should the technical specialist recommend?

- A. IBM Spectrum Control
- B. IBM Spectrum Scale
- C. IBM Spectrum protect Suite
- D. IBM PowerVM NovaLink

Correct Answer: B Section: (none) Explanation

Explanation/Reference:

Using IBM Spectrum Scale in an OpenStack cloud environment offers many benefits, including the enterprise features of IBM Spectrum Scale and consolidated storage options.

OpenStack include the Cinder component, which Provides virtualized block storage for virtual machines.

Incorrect Answers:

A: IBM Spectrum Control is a comprehensive solution that can significantly improve monitoring, automation and analytics capabilities in multi-vendor storage environments.

References: https://www.ibm.com/support/knowledgecenter/en/STXKQY 4.2.3/com.ibm.spectrum.scale.v4r23.doc/bl1ins openstackusecase.htm

QUESTION 20

Which IBM FlashSystem A9000 function enables the division of storage system administration tasks into logical domains?



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- A. Storage-based permissions
- B. Access-based permissions
- C. Role-based permissions
- D. interface-based permissions

Correct Answer: C Section: (none) **Explanation**

Explanation/Reference:

IBM FlashSystem A9000 enables a secure isolation of logical domains of storage resources among numerous tenants, with the ability to set different QoS levels for each domain. Multi-tenancy enables the division of storage system administration tasks into logical domains by using role-based permissions.

References: IBM FlashSystem A9000 Product Guide, page 2 http://www.redbooks.ibm.com/redpapers/pdfs/redp5325.pdf

QUESTION 21

QUESTION 21
A customer has a fully licensed single frame IBM TS4500 with four 3592 drives installed, using about 200 storage slots, and a small IBM TS3310 library with two LTO-6 drives and 60 LTO-6 cartridges. The customer wants to consolidate the two libraries and move the LTO cartridges into the IBM TS4500.

Which upgrade to the IBM TS4500 achieves this goal?

- A. Upgrade the LTO-6 drive models and move them into the existing frame.
- B. Use the existing frame, and add two new LTO-6 drives.
- C. Add a new drive frame, with two new LTO-7 drives.
- D. Move the two LTO-6 drives into a new IBM TS4500 drive frame.

Correct Answer: B Section: (none) **Explanation**

Explanation/Reference:

TS4500 tape library frame models: Frame Position 1 capacity: Up to 12 tape drives and 550 storage slots

References: https://www.ibm.com/support/knowledgecenter/en/STQRQ9/com.ibm.storage.ts4500.doc/ts4500_library_structure.html



QUESTION 22

Which non-concurrent capacity upgrade is possible for a customer with an IBM FlashSystem 900?

- A. Systems purchased with eight 2.9 TB flash modules can be expanded to twelve 2.9 TB flash modules.
- B. Systems purchased with eight 5.7 TB flash modules can be expanded to twelve 2.9 TB flash modules.
- C. Systems purchased with eight 1.2 TB flash modules can be expanded to twelve 2.9 TB flash modules.
- D. Systems purchased with eight 1.2 TB flash modules can be expanded to twelve 5.7 TB flash modules.

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

FlashSystem 900 can be populated with up to 12 x 1.2 TB IBM MicroLatency modules in increments of 4, 6, 8, 10, or 12; or up to 12 x 2.9 TB or 5.7 TB IBM MicroLatency modules in increments of 6, 8, 10, or 12.

These modules of either 1.2 TB, 2.9 TB, or 5.7 TB cannot be intermixed. Capacity can be upgraded by purchasing the AF23 (1.2 TB), AF24 (2.9 TB)) or AF25 (5.7 TB) IBM MicroLatency module feature codes as MES upgrades. Here are the upgrade paths: • Using AF23 (1.2 TB)

Start with 2.4 TB and grow to 4.8 TB 7.2 TB 9.6 TB, or 12 TB

Using AF24 (2.9 TB)

Start with 5.8 TB and grow to 11.6 TB, 17.4 TB, 23.2 TB, or 29 TB

Using AF25 (5.7 TB)

Start with 11.4 TB and grow to 22.8 TB, 34.2 TB, 45.6 TB, or 57 TB

References: http://www.redbooks.ibm.com/technotes/tips1261.pdf

QUESTION 23

A customer issued an RFP to replace EMC Disks. Vendors are being asked to provide the best competitive advantage in their proposals.

What should the IBM proposal on an IBM FlashSystem A9000 include in the bid?

- A. All software features included in base price
- B. Flash cache
- C. HyperSwap migration
- D. Fully-automated software tiering

Correct Answer: B Section: (none) Explanation



Explanation/Reference:

QUESTION 24

IBM has proposed IBM Spectrum Control for a customer who is currently using multiple vendor tools to manage a complex heterogenous storage environment.

How does IBM Spectrum Control do this?

- A. Simplifies single-pane of glass management
- B. Large-scale single name space
- C. Enables cloud-based management
- D. Heterogeneous data migration

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

IBM Spectrum Control offers a single pane of glass to monitor the performance of all your IBM Spectrum Scale clusters.

References: https://www.ibm.com/developerworks/community/blogs/869bac74-5fc2-4b94-81a2-6153890e029a/entry/test?lang=en

QUESTION 25

A customer has released a RFP for a cloud solution to monitor and analyze storage usage on IBM Spectrum Virtualize and EMC disk. The proposed solution will replace on-site monitoring software.

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Which product should the technical specialist recommend?

- A. IBM Spectrum Control Storage Insights
- B. IBM Electronic Service Agent
- C. IBM Storage Alert Manager
- D. IBM Spectrum Scale

Correct Answer: A Section: (none) Explanation

Explanation/Reference:



IBM Spectrum Control Storage Insights optimizes your on-premises storage infrastructure and data placement using predictive analytics in this cloud-based solution.

Incorrect Answers:

B: IBM Electronic Service Agent is a no-charge software tool that resides on your system to automatically and continuously monitor, collect, and submit hardware problem information to the IBM Electronic Support website. IBM Electronic Service Agent can also routinely collect and submit hardware, software, performance, and system configuration information, which might help IBM Support in diagnosing problems.

D: IBM Spectrum Scale, based on IBM General Parallel File System (GPFS™), is a proven, scalable, high-performance file management system that is being used extensively across multiple industries worldwide. IBM Spectrum Scale provides simplified data management and integrated information lifecycle tools capable of managing petabytes of data and billions of files, in order to address the growing cost of managing ever growing amounts of data.

References: https://www.ibm.com/ms-en/marketplace/analytics-driven-data-management

QUESTION 26

Which tool can be used to model the service time of the storage workload for a customer considering a storage consolidation to a new IBM storage platform?

- A. Disk Magic
- B. IBM Spectrum Control
- C. Arxscan
- D. Batch Magic

Correct Answer: A Section: (none) Explanation



Explanation/Reference:

Disk Magic is a tool for sizing and modelling disk systems for various servers.

Using Disk Magic will provide you with more knowledge about how performance for your specific workloads will change under various growth and/or hardware configuration scenarios.

Incorrect Answers:

C: Arxscan delivers fast and meaningful reporting and analysis for any size and type of storage environment, providing capacity, utilization, performance and dozens of other important metrics for all types of physical and virtual storage platforms and supports all major vendors in one, light weight, affordable solution.

D: Batch Magic is a powerful application for tape and batch window tuning and capacity planning.

References: http://www-304.ibm.com/partnerworld/gsd/showimage.do?id=25691



QUESTION 27

A customer is refreshing a 300 TB multi-vendor storage environment with an IBM Storwize V7000 and needs all the storage advanced functionality features such as remote mirroring, thin provisioning and Easy Tier. The customer also requires capability for storage provisioning, VMware vCenter APIs, and performance monitoring.

Which product should the technical specialist recommend?

- A. IBM Virtual Storage Center
- B. IBM Spectrum Protect Suite
- C. IBM Spectrum Control Advanced Edition
- D. IBM Storwize V7000 full bundle

Correct Answer: D Section: (none) Explanation

Explanation/Reference:

IBM Storwize V7000 provides the following benefits:

- Configurations up to 360 TB physical storage
- Built-in solid-state drive optimization
- Thin provisioning and nondisruptive migration of data
- IBM System Storage Easy Tier for automatically migrating data between storage tiers
- Metro Mirror and Global Mirror for replicating data synchronously or asynchronously between systems for backup efficiency
 Real-time compression for efficiently reducing disk capacity by up to 80%
- Easy to use graphical user interface
- Supports block workloads for simplicity and greater efficiency
- Resilience with IBM FlashCopy technology

Note: The IBM Storage Management Console for VMware vCenter is a software plug-in that integrates into the VMware vCenter server platform. It enables VMware administrators to independently and centrally manage their storage resources on IBM storage systems. These resources include SVC, Storwize V7000, Storwize V3700, among other IBM storage systems.

References: IBM SAN Solution Design Best Practices for VMware vSphere ESXi, page 4 http://www.redbooks.ibm.com/redbooks/pdfs/sg248158.pdf

QUESTION 28

A customer wants to storage system solution with proactive system health management. The customer has asked about advantages that the IBM FlashSystem A9000R offers.

Which feature should the technical specialist discuss?



- A. Grid architecture redundancy with hot standby
- B. Deduplication of data
- C. System call home feature
- D. Proactive phase out and self-healing mechanisms

Correct Answer: D Section: (none) Explanation

Explanation/Reference:

IBM FlashSystem A9000R also incorporates autonomic and proactive monitoring and self-healing features. These features enable preventive measures to preserve data redundancy before a component malfunction occurs.

References: IBM FlashSystem A9000R Product Guide, page 14 http://www.redbooks.ibm.com/redpapers/pdfs/redp5326.pdf **QUESTION 29**

A customer has experienced a high rate of drive failure and loss of data in its environment and is considering IBM XIV to replace the existing storage.

Which IBM XIV benefit should the technical specialist hightlight to the customer?

- A. Distributed cache
- B. Fast rebuild speed
- C. Distributed RAID
- D. IBM Hyper-Scale

Correct Answer: B Section: (none) Explanation



Explanation/Reference:

When an IBM XIV disk fails, all disks in the system participate in the rebuild. The outcome? It takes less time for the XIV system to restore full redundancy. For example, if a disk on a fully used 1 TB drive system fails, XIV restores full redundancy in an average of 30 minutes or less, and without a significant performance penalty. Traditional RAID systems might take up to a day to restore data reliability, with performance compromised during rebuild. The fast XIV rebuild time means that your data spends less time that is exposed to risk. In this way, the XIV system actually protects your data more than traditional enterprise storage systems can.

Incorrect Answers:

D: IBM Hyper-Scale Mobility is a no-cost feature introduced in XIV Storage System software. The feature allows users to move volumes from one XIV System Gen3 to another XIV System Gen3 with no interruption before, during, and after the migration.



QUESTION 30

Which feature of a base IBM XIV system is a technical advantage over competitive storage arrays?

- A. Always-on Compression
- B. SSD adaptive read caching
- C. Hot encryption
- D. IBM Spectrum Control Software

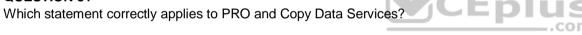
Correct Answer: C Section: (none) **Explanation**

Explanation/Reference:

Uniquely among IBM products, the XIV Storage System offers hot encryption. When encryption is enabled on the XIV system, all data that resides on it is encrypted within minutes, with no performance impact.

References: https://www.ibm.com/support/knowledgecenter/en/STJTAG/com.ibm.help.xiv.doc/xiv_elearning_reinventingstoragewithxivscript.htmlIBM XIV_Security with Data-at-Rest Encryption, page 2

QUESTION 31



- A. RPO is the minimum time interval that a mirrored volume or consistency group lag behind the source volume
- B. Volumes backed up from clones do not affect RPO.
- C. RPO is a pre-defined parameter based on the type of replication selected.
- D. Multiple consistency groups can be supported with asynchronous mirroring for different RPOs.

Correct Answer: D Section: (none)

Explanation

Explanation/Reference:

Consistency groups creates a consistent point-in-time copy of multiple volumes, with negligible host impact. You can enable FlashCopy consistency groups from the DS CLL

Note: Recovery Point Objective (RPO) describes the interval of time that might pass during a disruption before the quantity of data lost during that period exceeds the Business Continuity Plan's maximum allowable threshold or "tolerance."



References: https://www.druva.com/blog/understanding-rpo-and-rto/

QUESTION 32

A customer is interested in purchasing an IBM TS7650G ProtecTIER Gateway for its production site and one for replication at its DR site. The DR site is a target only site.

How is the cost of the solution affected by the replication?

- A. ProtecTIER replication is included with base license.
- B. ProtecTIER replication is included with hardware and no license is required.
- C. ProtecTIER replication licensing is required at both sites.
- D. ProtecTIER replication licensing is required at the primary site only.

Correct Answer: C Section: (none) Explanation

Explanation/Reference:

You must have a license for the replication feature for each ProtecTIER server in the replication grid.

References: https://www.ibm.com/support/knowledgecenter/en/STVRB7 3.2.0/ts7650ipg replication.html

QUESTION 33

A mainframe customer us considering moving from a native tape environment to a virtualized environment across two sites. A study has shown that it needs more than one IBM TS7700 at each site for performance and capacity reasons.

What is the benefit of using IBM TS7700 hybrid grid?

- A. It allows the customer to write data to the optimal storage hardware for each workload type.
- B. It allows clusters to connect using both FC and IP networks.
- C. It provides double the number of logical volumes.
- D. It permits a combination of IBM TS1130 and IBM TS1140 drives in one cluster.

Correct Answer: A Section: (none) Explanation

Explanation/Reference:



All TS7700 models can coexist in a grid. If only a disk and a tape-attached model are combined, that configuration is called a hybrid grid.

QUESTION 34

A cloud service provider is looking to provide a scalable solution that provides quality of service capabilities, ease of management, deduplication, and integration with OpenStack and VMware while providing sub-millisecond response time.

Which solution should the technical specialist recommend?

- A. IBM Storwize V5010
- B. IBM FlashSystem 900
- C. IBM FlashSystem A9000R
- D. IBM Spectrum Scale

Correct Answer: C Section: (none) Explanation

Explanation/Reference:

IBM FlashSystem A9000 can use the well-established IBM code base for OpenStack and REST API support.

IBM Spectrum Control Base V3.0 allows a simplified deployment and efficient integration of IBM FlashSystem A9000 with the VMware vCloud suite.

The FlashSystem A9000R data reduction node implements data deduplication and compression functions.

A9000 provides consistent and predictable microsecond response times and simplicity that you need.

References: http://www.redbooks.ibm.com/redpapers/pdfs/redp5325.pdf

IBM FlashSystem A9000 Product Guide

QUESTION 35

A customer's compliance department requires that data is kept for ten years. The data must be available as needed, and the customer must ensure that the data cannot be modified.

Which technology should the specialist recommend?

- A. NVMe flash
- B. SED drives
- C. NL-SAS drives
- D. WORM tape cartridges

Correct Answer: D



Section: (none) Explanation

Explanation/Reference:

Write-once, read-many (WORM) tape cartridge characteristic. WORM format pervades the entirety of every WORM cartridge. The WORM tape media is formatted to give every block on a WORM cartridge write-once, read-many protection. Additionally, the cartridge memory (CM) has a WORM indicator byte in the cartridge type field.

Incorrect Answers:

A: NVM Express (NVMe) or Non-Volatile Memory Host Controller Interface Specification (NVMHCI) is a logical device interface specification for accessing nonvolatile storage media attached via a PCI Express (PCIe) bus. The acronym NVM stands for non-volatile memory, which is commonly flash memory that comes in the form of solid-state drives (SSDs).

B: An SED is a self-encrypting hard drive with a circuit built into the disk drive controller chip that encrypts all data to the magnetic media and decrypts all the data from the media automatically. All SEDs encrypt all the time from the factory onwards, performing like any other hard drive, with the encryption being completely transparent or invisible to the user.

References: https://www.ibm.com/support/knowledgecenter/en/STPRH6/com.ibm.storage.drives.doc/con 3592ipg worm characteristics.html

QUESTION 36

A customer has an existing IBM XIV Gen3 solution with 3 TB drives and nine modules. While performance is acceptable, the customer wants to increase the performance of small-block reads. The current nine modules are running at 60% of capacity.

Which solution should the technical specialist recommend?

- A. Add the SSD caching option on five modules.
- B. Add the SSD caching option on all nine modules.
- C. Add IBM Spectrum Control Software with an IBM FlashSystem 900.
- D. Add three mode data modules to improve performance.

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

SSD Caching improves small-block random read performance. SSD Caching in the XIV system can improve performance of any workload that is suffering from high latency due to a high amount of small-block random read misses.



Consider a situation where you do not have an XIV system yet, but you want to know whether you might benefit from by extending the XIV with SSD Caching. On most storage systems, you can inspect I/O statistics and determine whether a workload can benefit from SSD Caching. If the storage system has granular reporting, you can take the following steps:

Sort your workload by read and write percentages.

The read portion of the workload can potentially benefit from the SSD Caching. A typical candidate workload for SSD Caching consists of 80% reads and 20% writes.

Etc.

References: http://www.redbooks.ibm.com/redpapers/pdfs/redp4842.pdf
Solid-State Drive Caching in the IBM XIV Storage System (May 2012), page 20

QUESTION 37

When implementing disk encryption on an existing IBM TS7700, which action does a client need to take for the existing virtual volumes to be encrypted after the encryption feature is enabled?

- A. No additional customer action is required once encryption is enabled.
- B. The copy refresh command must be issued for each of the existing volumes.
- C. Any existing volumes will have to expire and be reused before being encrypted.
- D. The customer must assign existing virtual volumes with a new encryption policy.

Correct Answer: D Section: (none) Explanation

Explanation/Reference:

An encryption policy configuration is the set of rules, or policies, that specify which volumes are to be encrypted.

References: https://www-01.ibm.com/support/docview.wss?uid=ssg1S7005315&aid=1 IBM TS7700 Version 4 Release 1, Introduction and Planning Guide, page 123

QUESTION 38

How does an IBM XIV System provide a guarantee of consistent performance even under the most dynamically changing elastic cloud workload environments?





https://vceplus.com/

- A. Built in performance monitoring of key resources
- B. Support for multiple versions of OpenStack software
- C. Use of a distributed grid architecture
- D. Capacity on Demand addition of useable storage

Correct Answer: C Section: (none) Explanation



Explanation/Reference:

IBM XIV Cloud Storage for Service Providers, or client hosted cloud solutions require elastic, rapid response, and dynamic demand that is captured within XIV's 485 TB linear scalability, and the immediate and automatic redistribution, without interruption, of added capacity. The grid design stripes data across all modules and disks, incorporating data redundancy for consistent and predictable I/O performance that is always load balanced.

Incorrect Answers:

D: With Capacity on Demand (CoD) you effectively buy a certain amount of capacity up front but also get up to 3 more modules shipped with the machine. You can start using this extra capacity when your business requirements demand it, at which point you will be asked by IBM to purchase it. The advantage here is that you physically get a bigger machine up front with all the performance benefits that bestows, plus you don't have to contact IBM to start using that extra capacity. References: http://www.redbooks.ibm.com/abstracts/tips1238.html?Open

QUESTION 39

A customer with a minimum IBM XIV configuration is upgrading to a full rack and plans to add SSDs for performance. How many SSDs would be added during this upgrade?

A. 12



B. 9

C. 6

D. 15

Correct Answer: B Section: (none) Explanation

Explanation/Reference:

A minimally populated rack for models 281x-114 and 281x-214 contains three data modules and three interface modules, for a total of six modules. A fully populated rack contains nine data modules and six interface modules, for a total of 15 modules.

References: https://www.ibm.com/support/knowledgecenter/en/STJTAG/com.ibm.help.xivgen3.doc/Gen3/PG/xiv pln3rackconfigurations.html

QUESTION 40

A customer has locations in Singapore, London, and Denver and is considering IBM Spectrum Scale for its unstructured data.

How does IBM Spectrum Scale benefit this customer?

A. It provides enterprise grade encryption.

B. It is a cloud-only offering.

C. It is a product with native CIFS support.

D. It offers a global namespace.

Correct Answer: D Section: (none) Explanation

Explanation/Reference:

IBM Spectrum Scale provides a global namespace.

References: https://www.ibm.com/support/knowledgecenter/en/STXKQY_4.2.1/com.ibm.spectrum.scale.v4r21.doc/bl1ins_intro.htm

QUESTION 41

A customer wants to replace its legacy block storage environment with a new IBM FlashSystem A9000R solution and is concerned about properly estimating consolidated storage capacity after deduplication and compression savings.

Which tool should be used?





- A. IBM Comprestimator
- B. IBM Storage Tier Advisor Tool
- C. IBM Data Reduction Estimator Tool
- D. Capacity Magic

Correct Answer: C Section: (none) Explanation

Explanation/Reference:

Data Reduction Estimator tool is a command-line host-based utility for estimating the data reduction saving on block devices.

In order to help with the profiling and analysis of existing user workloads that need to be migrated to a new system, IBM provides a highly accurate data reduction estimation tool which supports both deduplication and compression. The tool operates by scanning target workloads on any legacy storage array (IBM or 3rd party) and then merging all scan results to provide an integrated system level data reduction estimate.

References: https://delivery04.dhe.ibm.com/sar/CMA/SSA/06hb9/3/Data_Reduction_Estimation_Tool-1.02.htm

QUESTION 42

A customer has a requirement for 250,000 IOPS and 200 TB of capacity. The customer requires IBM SSR code upgrades at no additional charge.

Which solution should the technical specialist recommend to the customer?

- A. IBM DS8884 with 1.2 TB drives and HPFE
- B. IBM XIV System with 3 TB drives and SSD cache
- C. IBM Storwize V7000 with 1.2 TB drives and 800 GB SSDs
- D. IBM FlashSystem V9000 with IBM Storwize V5010 with 1.2 TB drives

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

Reference: https://www.ibm.com/developerworks/community/blogs/storageneers/entry/true flash architecture in ibm ds8870 250 000 iops 9 tb 1u? lang=en us

QUESTION 43

What is the minimum role level needed to download support log files to troubleshoot the IBM Spectrum Virtualize software?

A. Administrator



B. Monitor

C. Security Administrator

D. Service

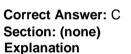
Correct Answer: A Section: (none) Explanation

Explanation/Reference:

QUESTION 44

A customer has a single frame IBM TS4500 Tape Library with six 3592-E07 drives. A new open systems server was recently purchased and, because of budget constraints, the customer has decided to use less expensive LTO-7 tape media and drives while protecting investment in existing tape cartridges. What is the most economical way to achieve this goal?

- A. Replace 3592 drives with LTO-7 drives in existing frame
- B. Add six LTO-7 drives in a new frame
- C. Add six LTO-7 drives in the existing frame
- D. Replace the frame and add LTO-7 drives



Explanation/Reference:

QUESTION 45

A customer is looking to deploy a private cloud with replication across four data centers. Which solution should the technical specialist recommend?

- A. IBM FlashSystem A9000
- B. IBM Storwize V7000
- C. IBM XIV
- D. IBM DS8884

Correct Answer: D





Section: (none) Explanation

Explanation/Reference:

QUESTION 46

A customer wants a new tape library. The customer currently uses LTO-5 tapes but has some older archive tapes on LTO-4. What is the highest level tape drive the customer can install and still read the older archive tapes and write to the LTO-5 tapes?

A. LTO-7

B. LTO-5

C. LTO-4

D. LTO-6

Correct Answer: D Section: (none) Explanation

Explanation/Reference:

Reference: https://larryjordan.com/articles/product-review-the-challenges-of-archiving/

QUESTION 47

A customer has an IBM TS7760 in one data center and is nearing the default limit of 1 million logical volumes defined. The customer is now installing a second IBM TS7760 and creating a two-way grid.

The customer states that it does not need to purchase any more logical volume feature codes because the new cluster in the second data center provides another 1 million volumes once the grid is enabled.

What should be explained to the customer?

- A. Once any grid is implemented with the latest code levels, there are 4 million logical volumes available by default.
- B. Adding grid members does not increase the number of logical volumes available without purchasing additional features.
- C. The 2 million logical volumes will be made available only after running a full copy refresh.
- D. The extra logical volumes are defined for contingency even through there will be twice as many available volumes.

Correct Answer: D Section: (none) Explanation



Explanation/Reference:

QUESTION 48

Which element of business continuity is employed by creating nightly flash copies at the primary data center?

- A. Continuous data protection
- B. Archive strategy
- C. Backup strategyD. HyperSwap

Correct Answer: C Section: (none) Explanation

Explanation/Reference:

QUESTION 49

A customer has an IBM Spectrum Virtualize environment as part of the IBM Spectrum Storage Suite. Snapshot is frequently used for short-term backups of databases. Increases in the database size have created the need for an additional storage footprint to store short-term backups, but capital expenses are on hold. What should the technical specialist recommend?

- A. Purchase a high density expansion for the IBM San Volume Controller.
- B. Leverage IBM Spectrum Protect Snapshot.
- C. Install IBM Spectrum Scale
- D. Implement Transparent Cloud Tiering

Correct Answer: C Section: (none) Explanation

Explanation/Reference:

QUESTION 50

Which IBM centralized key management software supports the IBM DS8886 storage system?

- A. Enterprise Secure Key Manager
- B. SafeNet KeySecure
- C. Security Key Lifecycle Manager



D. qCrypt Key

Correct Answer: C Section: (none) Explanation

Explanation/Reference:

Reference: https://www.google.com/url?

sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwidr9KfgMTbAhVCXSsKHbBXD4QQFggmMAA&url=https%3A%2F% 2Fwww.redbooks.ibm.com%2Fredpapers%2Fpdfs%2Fredp5344.pdf&usq=AOvVaw1U5WnyMO2loBMK0Xfbi4sv

QUESTION 51

A scientific customer is evaluating the IBM TS4500 against the Spectra Logic or Quantum Scalar i6000 and suggests that there is no difference since these vendors use IBM manufactured drives in their libraries. What is a key advantage of the IBM TS4500?

- A. Vendor agnostic media reporting
- B. Faster move time for tape mounts
- C. Standard 19" rack form factor
- D. Modular frames for expansion

Correct Answer: D Section: (none) Explanation



Explanation/Reference:

QUESTION 52

Which term describes the maximum amount of data that could acceptably be lost following a disaster?

- A. Recovery Restoration Objective
- B. Recovery Time Objective
- C. Recovery Point Objective
- D. Recovery Manager Objective

Correct Answer: C Section: (none) Explanation



Explanation/Reference:

Reference https://searchsecurity.techtarget.com/answer/A-recovery-point-objective-RPO-vs-a-recovery-time-objective-RTO

QUESTION 53

A customer wants to replace a physical tape environment with a virtual tape library in its open systems environment and is concerned about performance. The solution architect needs to validate performance requirements for a proposed solution. Which tool is used to capture inputs for the IBM virtual tape library performance tool?

- A. Capacity Magic
- B. ProtecTIER Planner
- C. IBM Spectrum Scale Protocol Node Sizing Tool
- D. Batch Magic

Correct Answer: B Section: (none) Explanation

Explanation/Reference:



QUESTION 54

A customer currently owns a Scalar LTO-5 SAS single drive autoloader. Planned future growth requires a tape library with capacity of four LTO-7 drives and 40 data cartridges.

Which IBM product meets the requirement while minimizing impact on the budget?

- A. IBM TS2900
- B. IBM TS3310
- C. IBM TS3200
- D. IBM TS3100

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

QUESTION 55



A scientific customer is implementing a large archive solution and plans to use IBM Spectrum Scale and IBM Spectrum Archive to store the data. The customer wants to take advantage of the IBM solution for media verification.

What does the customer need to understand about the IBM TS4500 media verification function?

- A. It is included in the firmware as a chargeable feature.
- B. It is managed by software running on a device external to the library.
- C. It makes use of all library drives while unused by the application.
- D. It requires one dedicated drive with two recommended.

Correct Answer: B Section: (none) Explanation

Explanation/Reference:

QUESTION 56

When upgrading an existing IBM TS4500 Tape Library, which solution provides high availability (HA) functionality?

- A. MES upgrade to add a second accessor to one of the existing frames
- B. An HA frame and a drive frame plus a second accessor
- C. An frame that automatically ships two service bays and accessor
- D. One new storage frame or drive frame with second accessor

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

QUESTION 57

A customer has an IBM SAN Volume Controller cluster with two CF8 nodes that contain one four-port Fibre Channel card. The customer desires to replace these two nodes with two new SV1 nodes running compression. The customer requires that this upgrade occurs without downtime. Which step is needed first to ensure success of this upgrade?

- A. Ensure the new SV1 nodes have one expansion enclosure with SSD drives.
- B. Make sure there are at least two Fibre Channel cards in the SV1 Nodes.



- C. Ensure the CF8 nodes are running at least software version v7.7.1.
- D. Determine if the new SV1 nodes have a compression accelerator.

Correct Answer: B Section: (none) Explanation

Explanation/Reference:

QUESTION 58

Which resource informs a storage specialist if a Technical and Delivery Assessment (TDA) has to be done?

- A. Systems Assurance Product Review Guide
- B. IBM Pre-sale TDA Checklist
- C. Trigger Criteria and Designated Product List
- D. Digital Techline Center

Correct Answer: A Section: (none) Explanation



Explanation/Reference:

QUESTION 59

An IBM Spectrum Protect customer is considering purchase of IBM Spectrum Protect for Virtual Environments for its large VMware implementation. The customer also needs to archive data to tape. The customer desires to consolidate its diverse software portfolio of multi-vendor solutions to handle storage monitoring and provisioning.

Which solution should the technician discuss with the customer?

- A. IBM Spectrum Protect Suite
- B. IBM Virtual Storage Center
- C. IBM Cloud Object Storage
- D. IBM Spectrum Storage Suite

Correct Answer: A Section: (none) Explanation



Explanation/Reference:

QUESTION 60

A customer has a VMware environment with host resource utilization concerns. The customer wants to overcome this issue when purchasing the next storage device.

Which IBM XIV storage hardware integration capability does this customer require?

- A. vStorage APIs for Array Integration (VAAI)
- B. vStorage APIs for Multipathing (VAMP)
- C. vStorage APIs for Site Recovery Manager (VASRM)
- D. vStorage APIs for Data Protection (VADP)

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

QUESTION 61

A customer needs to implement a block storage solution to achieve performance advantages using a hybrid disk configuration of flash cards, 15K drives, and 7.2K drives.

Which product should the technical specialist propose?

- A. IBM ProtecTIER TS7650G
- B. IBM Spectrum Scale
- C. IBM XIV
- D. IBM DS8886

Correct Answer: D Section: (none) Explanation

Explanation/Reference:

QUESTION 62

What is the function of Copy Export within an IBM TS7760?

A. Creates copies of data on tape for disaster recovery.



- B. Exports data to be read by third party tape drives.
- C. Moves data out of cache to provide more space.
- D. Copies data between grid connected IBM TS7760s.

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

Reference https://www.ibm.com/support/knowledgecenter/en/STFS69 4.1.0/ts7740 export import overview.html

QUESTION 63

How does the integration of IBM FlashSystem with IBM Spectrum Scale improve analytic environments?

- A. Enables Spectrum Scale applications to share common data pools.
- B. Allows storage of metadata on flash to reduce latency.
- C. Provides resource management across a range of physical media types and data protocols.
- D. Creates replicated copies of data for high availability and disaster recovery.

Correct Answer: C Section: (none) Explanation

Explanation/Reference:

QUESTION 64

A customer has an existing mainframe environment with an IBM DS8884 attached. This frame is only partially populated. The customer is attaching existing IBM POWER servers that require a three-tier storage solution including SSDs. Electrical power is not readily available. Price is also a key criterion. Which addition to the existing system should the technical specialist propose?

- A. Add IBM Spectrum Scale in front of the IBM DS 8884 along with additional disks in the IBM DS8884.
- B. Add an IBM Storwize V5030 in a new rack.
- C. Add an IBM SAN Volume Controller along with an IBM Storwize V7000.
- D. Add drive sets to the IBM DS8884.



Correct Answer: C Section: (none) Explanation

Explanation/Reference:

QUESTION 65

A customer has expressed difficulty in proactively monitoring and reviewing performance data for multiple core-edge topology SAN fabrics consisting of IBM branded SAN switches.

Which tool provides this capability?

- A. IBM Storage Management Tool
- B. IBM Storage Configuration Manager
- C. IBM Network Advisor
- D. Brocade SAN Health

Correct Answer: C Section: (none) Explanation



Explanation/Reference:

QUESTION 66

Which storage solution should the technical specialist propose to a customer with a large VMware environment and an IBM System z?

- A. IBM Storwize V7000
- B. IBM Spectrum Scale
- C. IBM DS8886
- D. IBM Spectrum Accelerate

Correct Answer: A Section: (none) Explanation

Explanation/Reference:



QUESTION 67

A customer has large capacity growth requirements and is concerned about the ability to redistribute the data. The customer experiences long delays in deployment with its current storage vendor.

Which storage system meets the customer's requirements?

- A. IBM DS8888
- B. IBM FlashSystem V9000
- C. IBM ProtecTIER TS7650G
- D. IBM FlashSystem A9000R

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

QUESTION 68

A cost sensitive customer has a poor performing EMC storage system and has made significant investment in copy services. IBM has been asked to provide a solution that will complement the EMC storage solution and provide improved response times. Which IBM Storage solution should the technical specialist recommend?

- A. IBM FlashSystem A9000
- B. IBM SVC with flash drives
- C. IBM Elastic Storage Server
- D. IBM FlashSystem 900

Correct Answer: C Section: (none) Explanation

Explanation/Reference:

QUESTION 69

Which product enables a single point-of-control for multiple storage resources to help support improved business application availability and greater resource utilization?



- A. IBM Storwize V5010 with external virtualization
- B. IBM Spectrum Accelerate
- C. IBM Spectrum Virtualize
- D. IBM DS8886

Correct Answer: A Section: (none) Explanation

Explanation/Reference:

Reference https://www.markiiisys.com/products/index.php/storage-systems/ibm-san-volume-controller-virtualization-engine

QUESTION 70

A customer is looking for a storage solution to archive data in the environment. What is the recommended technology from a price per TB standpoint?

- A. NL-SAS
- B. SAS
- C. NVMe
- D. Flash

Correct Answer: A Section: (none) Explanation



Explanation/Reference:



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