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C9020-668

IBM Storage Technical V1

Exam A

QUESTION 1

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 2
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 3
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 4
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 5
A customer needs to import and export volumes between IBM Spectrum Virtualize clusters that are geographically separated.

How can this be accomplished?

A. Create image mode volumes
B. Snapshots with Transparent Cloud Tiering
C. Implement IBM Spectrum Archive
D. Utilize tiering-to-tape media

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Transparent cloud tiering is a licensed function that enables volume data to be copied and transferred to cloud storage. The system supports creating connections to cloud service providers to store copies of volume data in private or public cloud storage.

With transparent cloud tiering, administrators can move older data to cloud storage to free up capacity on the system. Point-in-time snapshots of data can be created on the system and then copied and stored on the cloud storage.

References: https://www.ibm.com/support/knowledgecenter/en/STVLF4_7.8.1/spectrum.virtualize.781.doc/svc_icoverviewtranparentcltier.html

QUESTION 6
Which component of IBM Spectrum Scale enables data to be imported from several servers at the same time?

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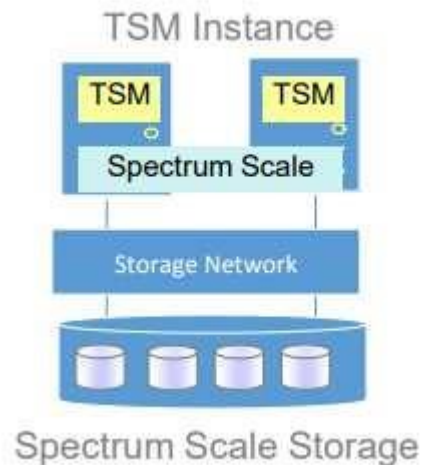C. Cloud Object Storage support
D. Multi-Cluster feature

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 7
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 8
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 9
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 10
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 11
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 12
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 13
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 14
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 15
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 16
Which IBM FlashSystem A9000 function enables the division of storage system administration tasks into logical domains?

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 17
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 18
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 19
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 20
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 21
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.

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 22
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 23
A security policy for a customer specifies a need for similar methods to manage encryption keys for disk and tape storage. A recent proposal includes the IBM TS4500 and IBM Storwize V5030.

What should the technical specialist highlight?

A. IBM Spectrum Control will manage encryption for both products.
B. IBM Security Key Lifecycle Manager will manage keys for both products.
C. The same USB key can contain the encryption keys for both products.
D. IBM Spectrum Protect will provide encryption keys for both products.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
IBM Security Key Lifecycle Manager for Dell Migration Customers centralizes, simplifies and automates the encryption key management process to help minimize risk and reduce operational costs. It offers robust key storage, serving and lifecycle management for IBM and non-IBM storage devices.

References: http://www-03.ibm.com/software/products/en/key-lifecycle-manager-dell

QUESTION 24
A customer wants to migrate from IBM DS5300 to an IBM FlashSystem V9000 and wants to determine reductions in physical storage requirements.

Which tool should the customer use?

A. IBM Comprestimator Utility
B. Capacity Magic
C. IBM Storage Tier Advisor Tool
D. Storage Consolidation Evaluation Tool hosted by Alinean

Correct Answer: B
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.
The IBM tool Capacity Magic can be used to verify capacity and space utilization plans.

Incorrect Answers:
A: 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: 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.

D: The IBM Systems Consolidation Evaluation Tool, from Alinean, Inc., can help you obtain an independent view of potential savings. In a matter of minutes you can see high level, quantifiable results for potential total cost of ownership and critical financial savings.

References: https://www-01.ibm.com/support/docview.wss?uid=tss1wp102305&aid=1

QUESTION 25
What does IBM require to verify a customer's environment before installation of an enterprise tape library?

A. Butterfly study
B. Submit a SCORE request
C. Technical and delivery Assessment
D. Product Installation and Planning guide

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
When you buy an IBM hardware product, the business partner or IBM will generally perform a Technical Delivery Assessment (TDA) meeting with you to insure that the solution you're going to buy is appropriate for your environment and meets your needs.

Incorrect Answers:
A: How do you easily move historic backup data from legacy environments and consolidate it with your current data? The answer is Migration Engine from Butterfly Software, an innovative and totally automated application. This extremely powerful software solution is specifically designed to migrate data quickly, safely, cost effectively and without disruption.

References: http://joehertvik.com/an-ibm-technical-delivery-assessment-primer/

QUESTION 26
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 27
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 28
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 theXIV 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 29
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 30
Which statement correctly applies to PRO and Copy Data Services?

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 CLI.

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 31
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 32
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 33
Which solution meets a customer's requirements for 100,000 IOPS, lowest latency, and maximum of 30 TB of raw capacity for an Oracle database?

A. IBM FlashSystem A9000 B.
IBM Storwize V7000F
C. IBM FlashSystem V9000
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.

Incorrect Answers:
C: IBM FlashSystem V9000 is designed to accelerate all types of applications and infrastructures, but it is most often deployed to support high-performance database applications such as those based on Oracle Database

Up to 32 PB of external storage can be managed by a single IBM FlashSystem V9000 array.

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

QUESTION 34
What should the technical specialist explain when describing the addition of grid elements to an IBM FlashSystem A9000R?

A. Up to 12 MicroLatency modules can be attached to a grid element.
B. Six elements must be grown to nine elements initially.
C. Element interface options must be the same type.
D. MicroLatency module size can be intermixed.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Grid elements installed must all be the same type (interface options and MicroLatency module size). An intermix of interface options or MicroLatency module capacities is not supported.

Note: Two grid controllers and one flash enclosure are combined to make one grid element.
Capacity, caching, and processing power are added at the same time by adding in one or more grid elements to scale up.
IBM Flash System A9000R consists of 2 - 6 grid elements, where a partially populated rack (2 - 5 grid elements) is expanded by adding grid elements to the maximum number of six-grid elements.

Incorrect Answers:
A: Each flash enclosure includes 12 flash modules (MicroLatency modules), battery modules, power supplies, and two fully redundant canisters,

B: IBM Flash System A9000R consists of 2 - 6 grid elements.

D: The capacity of all MicroLatency modules across all grid elements in IBM FlashSystem A9000R must be the same.

References: http://www.redbooks.ibm.com/redpapers/pdfs/redp5326.pdf
IBM FlashSystem A9000R Product Guide, page 10

QUESTION 35
A customer has a two-frame IBM TS4500 Tape Library with 24 IBM TS1150 drives. The L frame is the left-most frame and the customer wants to add slots for 1100 cartridges. The available physical space in the data center is limited, so high density (HD) frames are needed. The customer has some existing IBM TS3500 storage frames that could be repurposed.

What does the customer need to understand about the upgrade?

A. The IBM TS3500 storage frames must be installed to the right of the L frame. B.
A redeployed IBM TS3500 storage frame must be the last (right-most) frame.

C. An IBM TS3500 storage frame must be upgraded to HD2 before it can be redeployed.

D. One IBM TS3500 storage frame may be installed and must be frame position one.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Leverage flexibility that enables the library to grow from both the right and the left side of the first L frame since models can be placed in any active position.

References: https://www.ibm.com/us-en/marketplace/ts4500

QUESTION 36
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 37
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 38
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 39
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

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 40
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 41

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 42

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 43

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 strategy
D. HyperSwap

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 44
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 45
A customer has multiple tiers of storage, is experiencing high growth, and has issues with managing a complex environment. Simplification, ease of management, and storage efficiencies are key requirements. Which product meets the customer's requirements?

A. IBM Storwize V7000
B. IBM FlashSystem 900
C. IBM DS8884
D. IBM Storwize V5020

Correct Answer: A

Section: (none)
Explanation

Explanation/Reference:
QUESTION 46
A customer is running synchronous replication on IBM Storwize V7000.
What are the requirements for link bandwidth between data centers?

A. Equal to the average write peak Mbps
B. Greater than the average write peak Mbps
C. Equal to the overall write peak Mbps
D. Greater than the overall write peak Mbps

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 47
A customer has a 2-frame disk-only IBM TS7760 and is running out of capacity. There is a requirement to store an additional 2.4 PB of compliance data in the near future.
What is the lowest cost option to accommodate this new data?

A. Add tape attach feature, a minimally configured IBM TS4500 library, and media.
B. Add a second IBM TS7760 subsystem to accommodate 2.4 PB of data.
C. Add IBM Spectrum Archive to work with the IBM TS7760.
D. Implement Copy Export to migrate compliance data from IBM TS7760 to tape.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 48

A customer has deployed multiple IBM FlashSystem A9000R systems in its environment and has asked for a graphical report to periodically show capacity growth, utilization, and trends for the systems, pools, and domains.
Which tool generates this report?

A. IBM Storage Automation Plug-in for PowerShell
B. IBM Spectrum Control Base Edition
C. IBM Hyper-Scale Manager
D. Capacity Magic

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference https://www.ibm.com/support/knowledgecenter/STJTAG/com.ibm.help.xivgen3.doc/docs/IBM_Hyper-Scale_Manager_5.2_UG.pdf

QUESTION 49
An existing IBM San Volume Controller DH8 cluster consists of two I/O groups with DH8 nodes running IBM Spectrum Virtualize 7.6. Performance analysis shows the cluster requires significant additional memory for the I/O workload. What is the first step the technical specialist should recommend?

A. Upgrade the cluster to the recommended level of code
B. Replace the existing cluster DH8 nodes with SV1 nodes
C. Expand the cluster to 4 I/O groups using DH8 nodes
D. Add additional memory to the existing DH8 nodes

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 50
A customer has asked about the difference between standard RAID and declustered RAID architecture of IBM Spectrum Scale.
Which advantage of declustered RAID should the technical specialist highlight to the customer?

A. Dedicated spare drives
B. Uses a subset of drives in the declustered RAID to rebuild data
C. More predictable performance
D. Load on drives is increased during array rebuild

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 51
A customer needs to control the rapid growth of its database environment while providing the highest performance and lowest latency.
Which solution satisfies the customer's requirements while providing the best total cost of ownership?

A. IBM Spectrum Scale
B. IBM DS8886
C. IBM XIV with SSD
D. IBM FlashSystem V9000

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 52
A customer has acquired a variety of multi-vendor storage systems. The customer would like to implement a comprehensive solution that can significantly improve monitoring, automation and analytics capabilities for this environment. Which IBM solution provides these capabilities?

A. IBM Spectrum Control Advanced Edition
B. IBM Spectrum Control Base Edition
C. IBM Spectrum Copy Data Management
D. IBM Spectrum Accelerate

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference https://www.ibm.com/analytics/products/spectrum-control-advanced/

QUESTION 53
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 54
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 55
Which simple, non-intrusive process should a technical specialist recommend to obtain an overview of the storage environment?

A. Visual Storage Intelligence study
B. IBM Spectrum Control Base
C. Disk Magic study
D. IBM Spectrum Control Advanced

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 56
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 57

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 58
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 59

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 60

As part of a customer data management solution, it is necessary to store unused data on a low cost solution. A tape library provides low cost, but the customer's access to write to tape directly is denied.
Which recommendation enables the customer's application to access the tape devices?

A. Implement IBM Spectrum Archive Single Drive Edition on all IBM supplied LTO-5, LTO-6, or LTO-7 drives in the library.

B. Implement IBM Spectrum Virtualize with IBM Spectrum Archive enabled, allowing IBM LTO Drives to act as disks.

C. Implement IBM TS7760 with IBM Spectrum Archive, allowing management of tape and VTL disk under a single controller.

D. Implement IBM Spectrum Archive using LTO-7 or IBM TS1150 tape drives in the library.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 61

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 62
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 63
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 64
A customer with NAS and block storage is looking at IBM Software-Defined Storage as a means to improve storage efficiency within a data center.
Which product from the IBM Software-Defined Storage Control Plane will help the customer?

A. IBM Spectrum Protect
B. IBM Spectrum Archive
C. IBM Spectrum Accelerate
D. IBM Spectrum Virtualize

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 65
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: