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Backup and Recovery - Avamar Specialist Exam for Implementation Engineers

EMC E20-594

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Topic Break Down

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QUESTION NO: 1

A company purchased a Dell EMC Avamar server with 10 Gen4T storage nodes M2400, one accelerator node, and one spare node. They decided not to use network redundancy for their backups; they will use the Remote Management Console in shared mode, they choose to separate replication traffic without redundancy, and also decided to separate management traffic without redundancy.

Which network interfaces should be used in the storage nodes?

A. eth0, eth3, eth5

B. eth0, eth3, eth5, eth7, eth8

C. eth0, eth7, eth8

D. eth1, eth7, eth8

ANSWER: A

Explanation:

eth0, eth3, eth5 is the correct interface set for this stated Gen4T M2400 network design. The configuration requires three distinct, nonredundant traffic paths: one for backup/client data traffic, one for replication traffic, and one for management traffic. On these Avamar storage nodes, eth0 is used for the primary backup network, eth3 is used for the primary replication network, and eth5 is used for the primary management network. Because network redundancy was explicitly excluded, the corresponding secondary interfaces for redundant paths are not required. Remote Management Console shared mode does not require allocating a separate storage-node interface for an isolated RMC network; it uses the shared network design selected for the deployment. Using the designated primary interfaces preserves the requested traffic separation while matching the nonredundant Avamar hardware-network cabling model. Dell's Avamar documentation and product-support resources provide the applicable implementation, networking, and installation guidance for Avamar systems: Dell Avamar Server documentation and Dell Avamar support information and product documentation.

QUESTION NO: 2

You have just completed a successful EMC Avamar server software installation. Which component would have to be started manually?

A. backup scheduler

B. gsan

C. MCS

D. EMS

ANSWER: A

Explanation:

The **backup scheduler** must be started manually after a successful Avamar server software installation. This is an intentional operational step: installing the server software establishes the Avamar environment and its services, but scheduling should not begin until the implementation engineer has completed the required post-installation configuration. That configuration includes validating server health, configuring clients and datasets, defining retention policies, creating backup groups, and setting backup windows. Starting the scheduler only after these tasks are complete prevents backup jobs from being evaluated or dispatched before the environment is ready for production use.

In Avamar operations, scheduling is controlled through the Avamar management layer and is commonly administered with Avamar Administrator or the associated command-line management tools. The scheduler's state is therefore an important final readiness check during implementation and commissioning. Dell's Avamar documentation portal provides the version-specific administration and installation guides that describe server management and post-installation procedures: Dell Avamar Server Documentation. Dell also provides operational guidance for controlling Avamar services through its support knowledge base: Avamar: How to Start and Stop Avamar Services.

QUESTION NO: 3

By default, what does the asktime utility do when executed on the utility node?

A. Reports the NTP server's current time

B. Reports the time on the execution node

C. Configures the current time on the utility node and on all storage nodes

D. Configures the current time on the execution node only

ANSWER: C

Explanation:

The correct answer is **Configures the current time on the utility node and on all storage nodes**. In an Avamar grid, consistent system time across the utility node and every storage node is essential for reliable grid operation, logging, maintenance activities, replication workflows, and backup processing. The `asktime` utility is an Avamar administrative utility intended to set the grid time from the utility node and distribute that setting throughout the storage-node infrastructure. Running it with its default behavior therefore performs a grid-wide time update rather than merely displaying a clock value.

This behavior reflects Avamar's clustered architecture: individual nodes must maintain a common time basis so that events and records can be correlated correctly across the system. Administrators should ensure that the time source and time-zone configuration are appropriate before performing a time update, particularly in production environments where a substantial clock change can affect scheduled operations and audit records. Dell's Avamar documentation and product-support resources provide the applicable administration guidance for the installed Avamar release: Dell Avamar Server documentation. General time-synchronization principles and the role of network time services are also defined in RFC 5905.

QUESTION NO: 4

Which level of data can be restored using EMC Avamar?

A. Directories only

B. Files only

C. Files, directories, and file systems

D. File systems only

ANSWER: C

Explanation:

Files, directories, and file systems is correct because Avamar supports granular recovery as well as recovery of an entire protected file-system dataset. From the Avamar Administrator restore workflow, an administrator can browse backup contents, select an individual file, select a directory and its contents, or select the file system represented by the backup, then restore the selected data to its original location or an alternate destination. This flexibility is central to Avamar's operational recovery model: a small accidental deletion can be handled with a targeted file-level restore, while a broader data-loss event can be addressed by restoring the relevant directory tree or complete file system. The actual restore choices available can depend on the client plug-in and protected workload, but for standard file-system backups the product is designed to provide these levels of selection from retained backup versions. Dell describes Avamar as a deduplication backup and recovery solution and provides product documentation and support resources for its administration and restore operations. See the Dell Data Protection Suite for Avamar overview and the Dell Avamar documentation portal.

QUESTION NO: 5

An EMC Avamar backup has completed successfully, but an administrator must prevent that specific backup from expiring with the group retention policy.

What should the administrator do?

A. Assign a retention lock to the backup

B. Modify the dataset used by the group

C. Suspend the backup scheduler

D. Run garbage collection immediately

ANSWER: A

Explanation:

Assign a retention lock to the backup is correct. A retention lock preserves a selected backup independently of the normal expiration behavior defined by the retention policy. The locked backup remains available until the lock is removed or its lock conditions are otherwise satisfied according to the configured retention settings.

Changing a dataset changes future backup content, not the expiration state of an existing backup. Suspending the scheduler prevents scheduled jobs from starting but does not preserve an individual backup. See the Dell Avamar Server documentation for backup administration and retention procedures.

QUESTION NO: 6

Which level of granularity is used by Dell EMC Avamar to identify duplicate or redundant data?

A. Variable block

B. Fixed price

C. Sub-file

D. Files

ANSWER: C

Explanation:

Dell EMC Avamar identifies duplicate or redundant data at the **sub-file** level. Before protected data is transmitted to the Avamar server, the Avamar client divides each file's contents into variable-length data segments. It calculates a hash for each segment and checks whether that segment is already represented in the Avamar system. Only unique segments need to be sent and stored; previously stored matching segments are referenced instead. Because this operation occurs within the contents of a file rather than treating the entire file as a single unit, a small modification to a large file does not require another complete copy of that file. This fine-grained, client-side deduplication method is central to Avamar's reduction of backup-network traffic and backend storage consumption. "Sub-file" accurately describes the granularity at which Avamar recognizes repeated content, while the variable-length segmentation mechanism is the technique it uses to create the sub-file segments. Dell's Avamar product information describes its source-side, global deduplication capabilities, and the Avamar documentation portal provides the applicable administration and implementation documentation: Dell Avamar and Dell Avamar Server documentation.

QUESTION NO: 7

Based on Dell EMC best practices, what is recommended when creating Dell EMC Avamar domains?

A. Domain for each plug-in

B. Domain for each file system

C. Sub-domain for each hardware platform

D. Minimal number of domains

ANSWER: D

Explanation:

Dell EMC Avamar best practice is to use a **minimal number of domains**. Domains provide a logical hierarchy for organizing clients, datasets, backups, access control, and administrative delegation. Although this hierarchy can be useful where there is a genuine organizational or security boundary, creating many domains adds avoidable administrative complexity. It can make client administration, domain-level permissions, reporting, dataset assignment, and troubleshooting harder to manage consistently.

A simple domain structure is easier to maintain and is more resilient as the backup environment grows. Administrators should therefore create domains only when there is a clear operational requirement, such as separating independent business units or tenants with distinct administrative responsibilities. The hierarchy should not be designed around technical characteristics that can change frequently, such as individual plug-ins, file systems, or hardware types. Dell's Avamar documentation describes domain administration and the role of domains in organizing the Avamar client environment; implementation planning should apply that capability conservatively to avoid unnecessary hierarchy. See the Dell Avamar product documentation and the Dell Avamar Server documentation portal for the applicable administration and implementation guidance.

QUESTION NO: 8

Starting at the bottom, what is the recommended order for racking components in an EMC Avamar Data Store rack?

A. Switch, utility, storage, spare

B. Storage, switch, utility, spare

C. Spare, storage, switch, utility

D. Switch, utility, spare, storage

ANSWER: D

Explanation:

The recommended bottom-to-top racking order is **Switch, utility, spare, storage**. This arrangement follows the Avamar Data Store physical-installation layout: network switches are installed at the bottom, followed by the utility node, then the spare node, with the storage nodes occupying the upper rack positions. Applying the prescribed layout ensures that network connections, node cabling, service access, airflow planning, and the appliance's documented physical topology align with the Avamar implementation design. It also provides a consistent rack layout for field installation and subsequent maintenance, allowing technicians to identify the utility and spare systems separately from the storage-node population. The utility node provides management-related services for the Avamar system, while the spare node is positioned as the designated replacement resource; the storage nodes are then racked together in their assigned locations. EMC/Dell installation documentation should be used together with the applicable rack, power, clearance, and cabling requirements for the specific Avamar Data Store model. See Dell's Avamar documentation portal and the Dell Avamar product information for product documentation and deployment resources.

QUESTION NO: 9

Which Avamar utility modifies the operating system networking files on an Avamar utility node?

A. dpnutils

B. node.cfg

C. nodenumbers

D. dpnnetutil

ANSWER: D

Explanation:

dpnnetutil is the Avamar utility used to configure and modify operating-system network settings on an Avamar utility node. It is intended for Avamar node networking administration, including applying changes that must be reflected in the host's operating-system network configuration rather than only in Avamar application-level settings. This makes it the appropriate utility when an implementation or service procedure requires network-interface, address, hostname-resolution, or related network-file updates on a utility node.

Avamar environments use specialized command-line utilities to ensure configuration changes are made consistently with the appliance software's expected layout and operational procedures. Using the designated networking utility helps preserve the configuration required for node communication and correct cluster operation. Administrators should perform network changes in accordance with the relevant Avamar installation, service, or maintenance procedure and validate connectivity after changes are applied. Dell's Avamar documentation resources are available through the Dell Avamar Product Documentation page. Additional support resources and applicable technical documentation can be accessed through Dell Support.

QUESTION NO: 10

How large is the operating system partition for an AVE installation?

A. 20 GB

B. 40 GB

C. 60 GB

D. 80 GB

ANSWER: C

Explanation:

The operating system partition for an Avamar Virtual Edition installation is 60 GB. This allocation is reserved for the Avamar operating system and the software components required to run and manage the virtual appliance. It is distinct from the capacity allocated for Avamar data storage, checkpoint processing, metadata, and other backup repository functions. During AVE deployment and installation planning, the operating-system disk and partitioning requirements must be met before the appliance is configured, because undersizing this area can prevent a supported installation or interfere with routine system maintenance and upgrades. The 60 GB value is therefore a fixed implementation requirement rather than a sizing value that should be adjusted according to protected-client workload. Administrators should use the AVE documentation matching their installed Avamar release when confirming the complete virtual-machine resource requirements, including CPU, memory, operating-system storage, and data-disk capacity. Dell provides the applicable product documentation through its Avamar Virtual Edition documentation page and release-specific technical documentation through the Dell Support knowledge base.

QUESTION NO: 11

A company has requested that a Dell EMC Avamar Administrator console be installed on a server so that an Avamar server can be managed in a high security environment. Since firewalls are in use, which port will require a rule so that the Avamar server and Administrator console can communicate?

A. 443

B. 5555

C. 7778

D. 28002

ANSWER: C

Explanation:

The required port is **7778**. Avamar Administrator is the management GUI used to connect to the Avamar Management Console Server (MCS) on the Avamar utility node. The MCS provides the administrative services needed by the console, including authentication, monitoring, configuration, policy administration, and job-management functions. Its default communication port is TCP 7778. Therefore, when the Administrator console is installed on a separate server and a firewall separates that host from the Avamar server, the firewall policy must permit TCP communication to port 7778 on the Avamar server. In a high-security deployment, this rule should be narrowly scoped to the specific Administrator-console host or approved management subnet, rather than opened broadly. The port requirement is part of Avamar's documented network and firewall planning guidance for management connectivity. See Dell EMC's Avamar networking reference at Avamar Technical Documentation and the Dell Avamar product documentation portal at Dell Avamar Server Documentation.

QUESTION NO: 12

To maintain efficient operations in a Dell EMC Avamar with Data Domain solution, what is the recommended maximum utilization limit for the Data Domain capacity?

A. 75%

B. 80%

C. 85%

D. 90%

ANSWER: B

Explanation:

80% is the recommended maximum Data Domain capacity utilization target for an Avamar with Data Domain deployment. Maintaining capacity at or below this level preserves operational headroom for incoming backup workloads, retained backup data, cleaning activity, replication, metadata, and unexpected growth. This margin is especially important because Data Domain capacity consumption can increase between monitoring intervals as backup jobs complete and retention processing occurs. Capacity planning should therefore use usable capacity and projected growth, rather than treating the appliance's raw capacity as fully consumable.

Regular monitoring of Data Domain filesystem utilization and forecasting are essential parts of operating an Avamar/Data Domain environment. When utilization approaches the planning limit, administrators should take capacity-management action—such as expiring unneeded data under the retention policy, adding capacity, or rebalancing workload design—before backup operations are affected. Dell documentation for Data Domain OS provides the operational context for monitoring filesystem capacity and managing the system: Dell Data Domain DDOS documentation. The Avamar documentation portal also provides deployment and operational guidance for Avamar systems integrated with Data Domain: Dell Avamar Server documentation.

QUESTION NO: 13

GSAN is currently unresponsive on the Dell EMC Avamar server. Dell EMC Support has indicated that the Avamar server will need to be rolled back.

What is the default number of choices of times available for rollback?

A. 2

B. 3

C. 4

D. 5

ANSWER: C

Explanation:

4 is correct. Avamar rollback is a controlled recovery procedure used to return the GSAN and its internal data store to a previously valid checkpoint when directed by Dell EMC Support. The system maintains a default set of four rollback checkpoint choices, allowing Support and the implementation engineer to select an appropriate known-good point preceding the condition that caused GSAN to become unresponsive. These choices are based on retained checkpoints and are intended to provide recovery flexibility without requiring selection from the entire historical checkpoint catalog. Because a rollback changes the Avamar server state and may affect data or operations that occurred after the selected checkpoint, it should be performed only under Dell guidance and according to the documented support procedure. Dell's Avamar documentation resources, including administration and maintenance guidance, are available through the Dell Avamar Server documentation portal. Dell also provides product support resources and knowledge articles through the Dell Technologies Support portal, where the applicable version-specific rollback procedure can be located.

QUESTION NO: 14

Which command is used to configure RMC access for Dell EMC Avamar Gen4T systems?

A. dpnnetutil

B. yast

C. ipconfig

D. ipmitool

ANSWER: A

Explanation:

`dpnnetutil` is the Avamar utility used during Avamar Gen4T implementation and service procedures to configure network-related settings, including Remote Management Card (RMC) access. RMC connectivity provides out-of-band management capability, allowing authorized administrators to reach the appliance's hardware-management interface independently of the Avamar operating-system network path. This is important for remote troubleshooting, power and console operations, and recovery situations in which normal host connectivity is unavailable.

On Gen4T systems, the Avamar implementation workflow uses the Avamar-specific `dpnnetutil` utility so that the RMC network configuration is applied in the manner expected by the appliance software and its documented deployment procedures. The command is therefore the appropriate administrative interface for setting or updating RMC access parameters as part of appliance network configuration. Dell's Avamar product documentation is available through the Dell Avamar Server documentation page. For broader appliance hardware-management and deployment guidance, consult the Dell Avamar Data Store documentation page.

QUESTION NO: 15

Which backup level(s) does the EMC Avamar SQL Plug-in support?

A. Full, Differential, and Incremental

B. Full and Incremental only

C. Full only

D. Full and Differential only

ANSWER: A

Explanation:

Full, Differential, and Incremental is correct. The EMC Avamar SQL Plug-in is designed to protect Microsoft SQL Server databases using the SQL Server backup model. A full backup establishes the primary recoverable database backup. A differential backup captures extents changed since the most recent full backup, allowing a restore sequence that combines the full backup with the selected differential backup. An incremental backup in this context protects the transaction-log

changes since the preceding applicable log backup, supporting point-in-time recovery when the database recovery model and log-backup requirements permit it.

Using these levels gives implementation engineers flexibility to balance backup windows, network and storage consumption, recovery-point objectives, and restore requirements. A typical protection strategy uses periodic full backups, differential backups as needed between full backups, and frequent incremental/log backups for databases requiring tighter recovery points. The Avamar SQL Plug-in coordinates SQL Server backup processing while Avamar manages deduplicated backup data and retention. Dell's Avamar product documentation is available through the Dell Avamar Support page. Microsoft also describes the SQL Server full, differential, and transaction-log backup model in its SQL Server backup overview.

QUESTION NO: 16

Which type of restore can a user perform with EMC Avamar Desktop/Laptop?

A. To the client from which the data originated

B. To any client managed by EMC Avamar

C. With Administrator privileges, to any client

D. To any client in the enterprise

ANSWER: A

Explanation:

"To the client from which the data originated" is correct because Avamar Desktop/Laptop is designed for self-service protection and recovery of data belonging to the endpoint user. The Desktop/Laptop client maintains the association between its backups and its registered client identity, allowing the user to browse backup versions and restore selected files or folders back to that originating endpoint. This model supports straightforward recovery of accidentally deleted or modified user data while preserving the backup system's client and security boundaries.

Avamar's endpoint workflow is intentionally centered on restoring the protected machine's own data, rather than providing unrestricted cross-client recovery. Recovery operations use the client's backup metadata and destination context so that restored content is returned to the appropriate desktop or laptop environment. Administrators may use separate administrative tools and procedures when a recovery must be directed elsewhere, but that is distinct from the restore capability available to a Desktop/Laptop user. Dell's Avamar documentation resources provide the product documentation set and implementation guidance: Dell Avamar Documents. Additional product information is available from Dell Avamar Data Protection.

QUESTION NO: 17

An EMC Avamar customer needs to reduce the maximum size of the file cache for a backup client.

What should be done?

A. Delete the file cache and set filecachemax to the new value

B. Set filecachemax to the new value

C. Create a default file cache of the desired size

D. Move the file cache to \tmp

ANSWER: A

Explanation:

Delete the file cache and set filecachemax to the new value is correct because an existing Avamar client file cache is already allocated and maintained at its prior configured capacity. Reducing the `filecachemax` setting alone does not reliably reclaim or resize the existing cache structure. Removing the current file cache forces the Avamar client to create a fresh

cache during subsequent backup processing, using the newly configured maximum size. This ensures that the lower limit is actually applied rather than merely being recorded as a setting for future cache creation.

The file cache supports Avamar's client-side file-system backup processing by retaining metadata used to efficiently identify changed files. Since deleting it causes the cache to be rebuilt, the next relevant backup can require additional scanning and processing time; this is expected when recreating a cache with changed sizing requirements. The change should therefore be planned with awareness of the potentially longer subsequent backup. Dell's Avamar product documentation is available through the Dell Avamar documentation portal, and current implementation resources can also be located through Dell Support knowledge resources.

QUESTION NO: 18

You asked to implement a Dell EMC Avamar solution for a VMware ESXi environment. Which file contains the settings to support an Avamar-VMware integration?

A. probe.xml

B. mcserver.xml

C. acdc.xml

D. gsankeydata.xml

ANSWER: A

Explanation:

probe.xml contains the configuration settings used to support the Avamar integration with VMware environments. In particular, it is part of the Avamar Management Console Server configuration and holds VMware-related probe settings that enable Avamar to communicate with and discover information from the vCenter-managed environment. This integration is what allows Avamar to identify virtual machines and associated inventory objects for VMware image-level protection workflows.

For an implementation engineer, the important point is that VMware integration is managed centrally by Avamar rather than through an individual guest client configuration. The relevant probe configuration is used by the management services that coordinate VMware inventory interaction and backup operations. Changes to Avamar configuration files should be performed only when directed by the applicable Dell documentation or Dell Support, with a configuration backup taken first, because unsupported manual changes can affect management-service behavior.

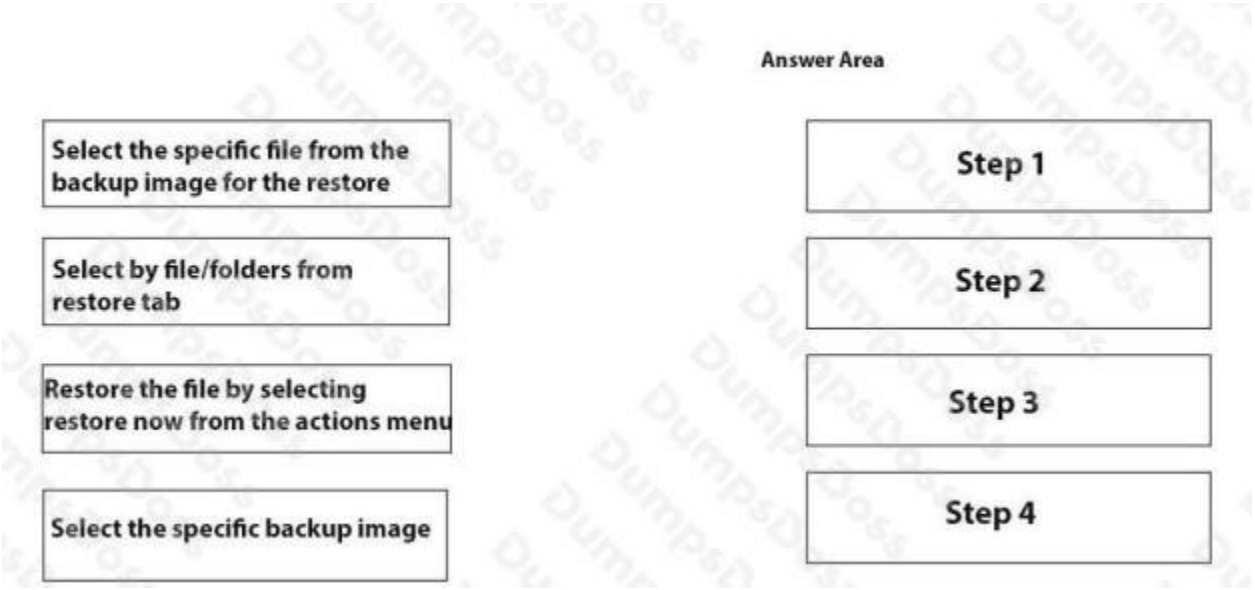
Dell publishes Avamar product documentation, including VMware integration and administration guidance, through the Dell Avamar documentation portal. VMware inventory and virtual-machine management are provided through vCenter Server, as described in the VMware vSphere documentation.

QUESTION NO: 19 - (DRAG DROP)

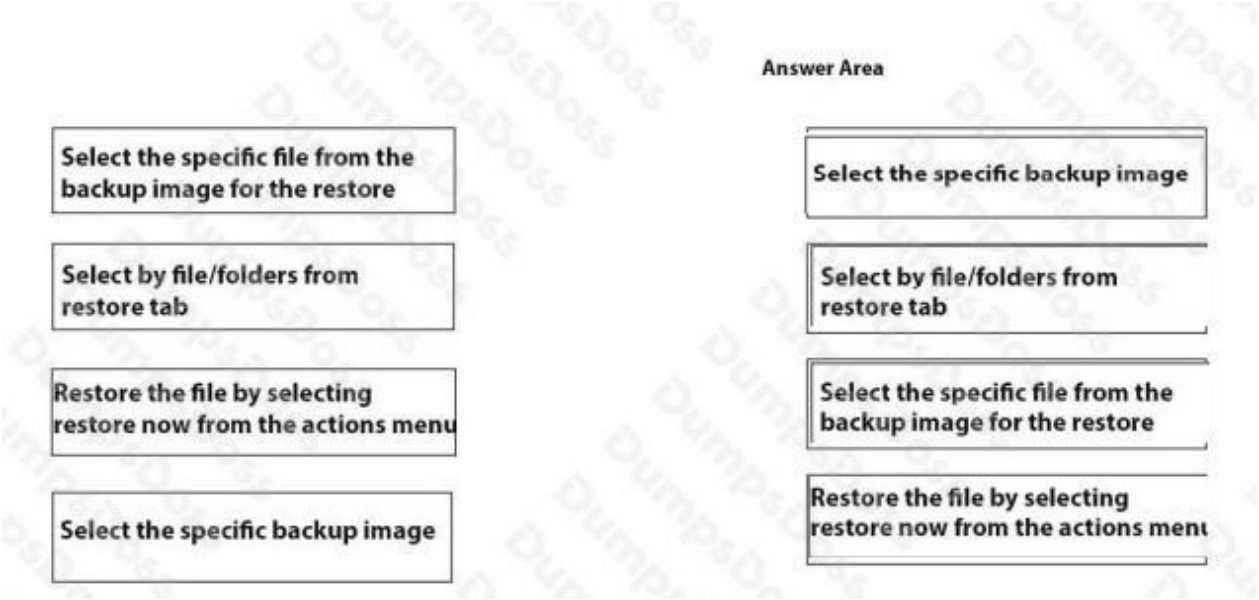
DRAG DROP

An administrator wants to restore a specific file from the Dell EMC Avamar MCS that was backed UP. What is the correct sequence of steps to restore the file?

Select and Place:



ANSWER:



Explanation:

A file-level restore in Dell EMC Avamar MCS is performed by working from the required backup image toward the individual item that must be recovered. The process starts by selecting the specific backup image. A backup image represents the available point in time from which the administrator will restore, so it establishes the data set and version that can be browsed. Once that image is selected, the administrator uses the file/folders selection available from the restore tab. This opens the restore-oriented browsing view for the chosen backup data and allows the contents of that image to be navigated in a controlled way.

The next action is to select the specific file from the selected backup image. At this point, the administrator has identified both the correct recovery point and the precise object to recover, which is essential when only one file is requested rather than an entire directory or system. Finally, the restore is started by choosing *restore now* from the actions menu. This submits the selected file restore using the current restore settings and begins the recovery operation. The sequence shown progresses cleanly from choosing the source recovery point, to browsing its contents, to identifying the file, and then launching the restore. Dell documentation for Avamar administration and recovery resources is available through the Dell Avamar Server documentation page and the Dell knowledge-base guidance for restoring files and folders.

QUESTION NO: 20

In what type of file is backup data stored in an EMC Avamar storage node?

A. Stripes

B. Chunks

C. Hash

D. Index

ANSWER: A

Explanation:

Stripes is correct. Avamar stores protected backup data on its storage nodes in stripe files. A stripe is the fundamental Avamar storage structure used to organize deduplicated data across the nodes of an Avamar server. When backup clients submit data, Avamar applies variable-length segmentation, computes hashes for segments, and stores only unique segments; those stored segments are placed within stripes. This layout supports Avamar's distributed architecture and its RAIN (Redundant Array of Independent Nodes) protection model, which distributes data and parity information across storage nodes so that the system can recover from node failures within its configured tolerance.

Stripe-based storage is therefore central to both Avamar capacity management and data resilience. Operational activities such as garbage collection, checkpointing, and hfscheck operate in the context of Avamar's underlying grid and stripe-based data store. Understanding that backup content resides in stripes helps implementation engineers distinguish the physical storage representation from metadata concepts used for lookup and indexing during backup and restore processing. Dell's Avamar documentation is available through the Dell Avamar product documentation portal; additional current product and data-protection information is available from Dell Data Protection Suite.