

**100%** Money Back  
**Guarantee**

**Vendor:**EMC

**Exam Code:**E20-598

**Exam Name:**Backup and Recovery - Avamar  
Specialist Exam for Storage Administrators

**Version:**Demo

### QUESTION 1

What are the Avamar 6 install and upgrade rules for Gen1 through Gen4 node technology?

- A. Gen4/3 can be installed new or upgraded. Gen2 can be upgraded only. Gen1 cannot be installed new or upgraded.
- B. Gen4 can only be installed new. Gen3/2 can be installed new or upgraded. Gen1 cannot be installed new or upgraded.
- C. Gen4 can be installed new or upgraded. Gen3/2/1 can only be upgraded.
- D. Gen4 can only be installed new. Gen3/2 can only be upgraded. Gen1 cannot be installed new or upgraded.

Correct Answer: A

---

### QUESTION 2

What happens when a new storage node is deployed in the event of a storage node failure?

- A. A spare storage node must be deployed manually
- B. A spare storage node will be deployed automatically
- C. The utility node is automatically promoted to a storage node
- D. The utility node needs to be deployed manually

Correct Answer: A

---

### QUESTION 3

An EMC Avamar customer, without premium support, has a requirement to recover from a failed storage node. What is the minimum number of nodes, of all types, required to support this functionality?

- A. 1
- B. 3
- C. 4
- D. 5

Correct Answer: D

---

### QUESTION 4

The exhibit shows a portion of a DPN Summary report.

Run Report - Activities - DPN Summary								
Filtered by						Number of rows in result set: 2 Reported at 2011-07-20 17:58:22 EDT		
Date Column: Backup Started Time Period								
From Date:		Time:		To Date:		Time:		
Tue 2011-07-19		17:58		Wed 2011-07-20		17:58		
<b>Retrieve</b>								
ModReduced	ModNotSent	ModSent	TotalBytes	PcntCommo	Overhead	WorkOrderID	ClientVer	Operation
32768	0	1104	33872	97	4898	"MOD-1311...	"6.0.100-580"	"On-Deman...
65789839	9092160	242452407	317367414	24	544232	"MOD-1311...	"6.0.100-580"	"On-Deman...

Which field on the report indicates how much data has been transferred to the EMC Avamar server?

- A. ModSent
- B. TotalBytes
- C. ModReduced
- D. PcntCommon

Correct Answer: A

Figure 5 on page 66 shows the relationship between these values.

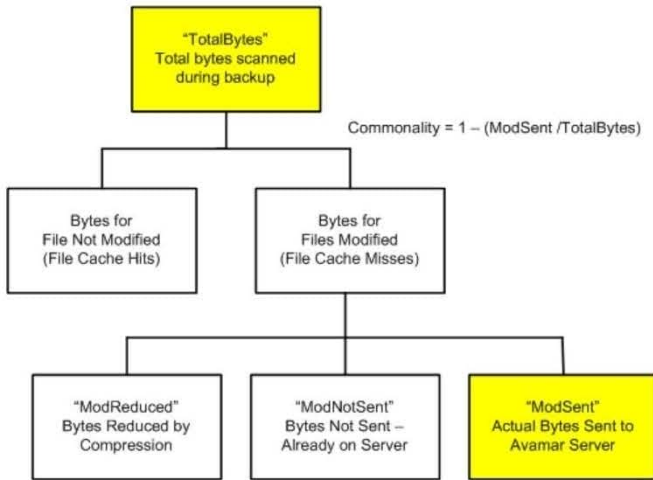


Figure 5 Avamar commonality diagram

Column heading	Description
Host	The client hostname as defined in DNS. <ul style="list-style-type: none"> <li>During backups, the hostname is the client that backs up data to the Avamar server.</li> <li>During restores, the hostname is the client that receives the restored data.</li> </ul> <p><b>Notice:</b> This client is not the one that sourced the data.</p>
StartValue	The UNIX start time of the activity. The UNIX start time is in the local time of the Avamar server.
OS	The client operating system.
StartTime	The date and time the activity starts. The StartTime is in Coordinated Universal Time (UTC)/Greenwich Mean Time (GMT).
Root	The name of the dataset that the activity uses, if applicable.
Seconds	The duration, in seconds, of the activity.
NumFiles	The total number of files scanned during the activity less those files that were excluded through exclusion rules.
NumModFiles	The total number of modified files associated with the activity.
ModReduced	The amount of modified data that is reduced due to compression during commonality processing.
ModNotSent	The amount of bytes in modified files that do not have to be sent to the Avamar server because of subfile-level commonality factoring.
ModSent	The amount of new bytes sent to the Avamar server.

TotalBytes	“Summary of key DPN summary terms” on page 65 provides a description for TotalBytes.
PcntCommon	Commonality percentage during the activity.
Overhead	<p>The number of bytes for COMPOSITEs and DIRELEMs used to store data. Overhead is the amount of nonfile data that the client sends to the server for the following items:</p> <ul style="list-style-type: none"> <li>• Indexing information</li> <li>• Requests from the client to the server for the presence of specific data chunks</li> <li>• ACLs</li> <li>• Directory information</li> <li>• Message headers</li> </ul> <p>On any active file system, overhead is usually a small percentage of the file data that is sent to the Avamar server.</p>
WorkOrderID	<p>The unique identifier for the following activities:</p> <ul style="list-style-type: none"> <li>• For scheduled backups, the format of a work order ID is: <i>SCHEDULENAME-GROUPNAME-UNIX</i>time in milliseconds where <i>SCHEDULENAME</i> is the name of the Avamar schedule and <i>GROUPNAME</i> is the name of the Avamar group.</li> <li>• For on-demand backups initiated from the Policy window <b>Back Up Group Now</b> command, the format of the work order ID is: <i>GROUPNAME-UNIX</i>time in milliseconds</li> <li>• For on-demand backups or restores initiated from the <b>Backup and Restore</b> window, the format of the work order ID is: <i>MOD-UNIX</i>time in milliseconds</li> <li>• For on-demand backups or restores initiated from the <b>Backup and Restore</b> window, the format of the work order ID is: <i>MOD-UNIX</i>time in milliseconds</li> <li>• For on-demand backups initiated from the systray icon on a Windows Avamar client, the format of the work order ID is: <i>COD-UNIX</i>time in milliseconds</li> <li>• For command-line backups or restores, the format of the work order ID is: <i>NAH-UNIX</i>time in milliseconds</li> <li>• For replication activities, the format of the work order ID is: <i>COD-NAH-UNIX</i>time in milliseconds</li> </ul>
ClientVer	The Avamar client software version.

QUESTION 5

Avamar solves the challenge of redundancy in backup data at the client—before transfer across the LAN or WAN during a backup operation. Avamar backup agents are deployed on the systems to be protected (for example, servers, desktops, laptops) to identify and filter repeated data segments stored in files within a single system and across multiple systems over time. This ensures that each unique data segment is backed up only once across the enterprise. As a result, copied or edited files, shared applications, embedded attachments, and even daily changing databases generate only a small amount of new backup data.

By moving only new, unique subfile variable length data segments, Avamar significantly reduces the required daily network bandwidth and storage. By storing just a single instance of each subfile data segment globally, Avamar also reduces total back-end storage by up to 50x for cost-effective, long-term, disk-based recovery.

What is the function of an EMC Avamar spare node?

- A. Load balance the utility node
- B. Dynamically grow capacity
- C. Replace a failed data node
- D. NDMP accelerator

Correct Answer: C

#### Notes

##### Symptom

Every multi-node Avamar system must have a spare node. Below are guidelines that describe how it is used to provide redundancy.

##### Resolution

- The Avamar spare node is a standby server which remains powered on and can be placed in operation as a data or utility node. This is a manual process.
- The spare node should not be used to increase capacity on the grid.
- On certain occasions, it also can be used for as a part replacement source, which should be decided by management.
- The only parts that can be used are Hard Drives, Power Supply or the chassis (in case of a Hard Drive swap).
- Hard Drives and Power Supplies are hot swappable.
- Hard Drive: No more than 1 disk should be removed from the spare node.
- Power Supply: If one power supply must be removed for a period of time, the remaining power supply must be installed in the left bay and a blank installed in the right bay.  
IMPORTANT: Extended operation of a node with only one functioning power supply and no blank can cause the node to overheat.
- Chassis: For more details see esg104620 and "Transplanting a Node" chapter on *ADS Customer Service Guide*.

##### Other points to consider:

- A node rebuild can be affected if the spare node is in a degraded state. That is, if a HDD has been removed and another node on the grid goes offline.
- As some grids are formed with multi generation nodes, it is necessary to verify if the parts are the same and extra attention must be paid when ordering new parts.  
configuration must be the same for every data node within a grid.
- Spare nodes are not part of the active Avamar GSAN and therefore, hardware failures are not monitored in the same way as on other Avamar nodes.

[https://emc--c.na5.visual.force.com/apex/KB\\_BreakFix\\_1?id=kA1700000000TkN](https://emc--c.na5.visual.force.com/apex/KB_BreakFix_1?id=kA1700000000TkN)

## QUESTION 6

A Microsoft Windows user is about to initiate an on-demand backup from the client interface when the utility node fails on their multi-node EMC Avamar grid. What must be done prior to initiating the backup to ensure the backup will complete successfully?

- A. Nothing. Backups are performed from the client to the storage nodes directly.
- B. The utility node must be replaced and the configuration restored prior to starting the backup.
- C. The spare node must be converted to a utility node and the configuration restored to it prior to starting the backup.
- D. The client must be activated temporarily to the first storage node and then the backup can continue.

Correct Answer: A

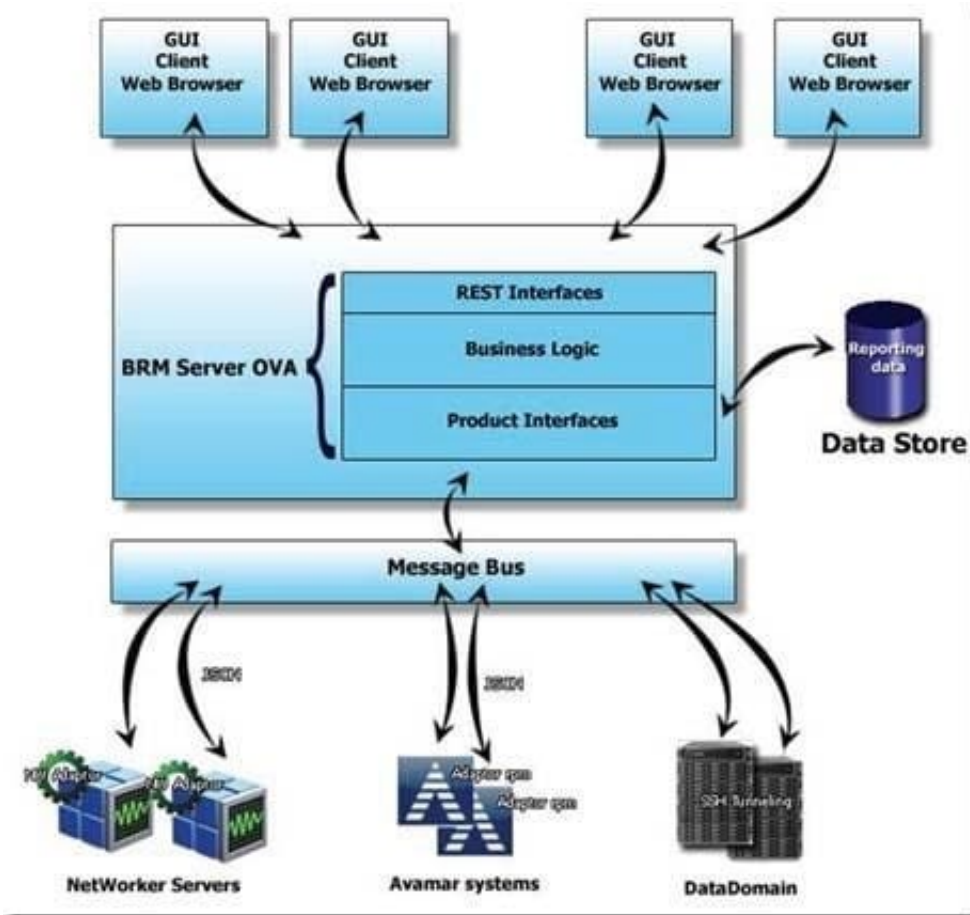
---

## QUESTION 7

**Table 59** Comparison of enterprise management products

	Avamar Enterprise Manager	Backup & Recovery Manager
Software host	Avamar utility node	VMware vSphere™ client
At-a-glance dashboard	Status view of Avamar systems	Select between consolidated and individual status views of: <ul style="list-style-type: none"> <li>• Avamar systems</li> <li>• NetWorker servers</li> <li>• Data Domain backup targets</li> </ul>
Detailed backup and capacity information for Avamar systems	Yes	Yes
Replication management	Yes	Yes
Launch other management applications	<ul style="list-style-type: none"> <li>• Avamar Administrator</li> <li>• Avamar Client Manager</li> <li>• Avamar Installation Manager embedded in System Maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Avamar Administrator</li> <li>• Avamar Enterprise Manager</li> <li>• Avamar Client Manager</li> <li>• Avamar Installation Manager</li> <li>• AvInstaller service</li> </ul>
Display warnings, errors, and system alerts	Yes	Yes, in a quick-look graphical display and in detailed text. Filter the view by product, system, and category.
Management reports: select, view, and export	<ul style="list-style-type: none"> <li>• Backup</li> <li>• System</li> </ul>	<ul style="list-style-type: none"> <li>• Backup</li> <li>• System</li> <li>• Configuration</li> </ul>





What are characteristics of a single node server with integrated Data Domain?

- A. Non-RAIN; requires replication if Avamar Checkpoint data is backed up on Data Domain
- B. Non-RAIN; does not require replication if Avamar Checkpoint data is backed up on Data Domain
- C. RAIN; does not require replication if Avamar Checkpoint data is backed up on Data Domain
- D. RAIN; requires replication if Avamar Checkpoint data is backed up on Data Domain

Correct Answer: B

## Avamar checkpoint backup support

Avamar checkpoint backup support allows Avamar checkpoints to be stored on a Data Domain system (that uses DD OS 5.3 or later). These checkpoints are then used if disaster recovery is required.

The backup option for Avamar checkpoint support is only available on a single node Avamar server or Avamar Virtual Edition (AVE). You configure this option through the Avamar Administrator. The restore option is only available through EMC Professional Services.

The use cases for this option are:

- ◆ Disaster Recovery for a single node Avamar server or AVE
  - ◆ For configurations that do not have a secondary Avamar server and Data Domain system for replication
  - ◆ For environments which perform backups mainly to Data Domain systems
- 

### QUESTION 8

According to EMC Avamar best practices, what is the maximum ratio of database data to file system data that should exist in an Avamar backup environment?

- A. 10:90
- B. 20:80
- C. 30:70
- D. 50:50

Correct Answer: B

---

### QUESTION 9

Which tool is used to move a client to a new domain in EMC Avamar 6.0?

- A. Client Manager
- B. Activation Manager
- C. Enterprise Manager
- D. Installation Manager

Correct Answer: A

## Clients page

Avamar Client Manager's **Clients** page provides information and tools for working with Avamar clients.

From the **Clients** page you can:

- ◆ Select the computers in your enterprise's domain and add them as Avamar clients
- ◆ View detailed information about individual clients
- ◆ Move, retire, and delete clients
- ◆ Change a client's group associations
- ◆ Upgrade the Avamar software on the client

To navigate between the sections of the Clients page, select from the choices in the left-side menu.

---

### QUESTION 10

What is the correct order of activities performed during the EMC Avamar maintenance window?

- A. Garbage collect, checkpoint, HFS check, checkpoint
- B. Garbage collect, checkpoint, HFS check only
- C. Checkpoint, HFS check, garbage collect only
- D. Checkpoint, HFS check, checkpoint, garbage collect

Correct Answer: A

The **maintenance window** is reserved for maintenance activities, primarily garbage collection, checkpoint creation, and HFS check. A limited number of backups may be initiated, but both backup time and maintenance activities will be impacted. By default, the maintenance window runs during the day from 8 am to 8 pm.

## Maintenance activities

Avamar server maintenance comprises three essential activities:

- ◆ **Checkpoint**—A checkpoint is a snapshot of the Avamar server taken for the express purpose of facilitating server rollbacks.
  - ◆ **Checkpoint validation** (also known as HFS check)—A Hash File System check (also known as HFS check) is an internal operation that validates the integrity of a specific checkpoint. Once a checkpoint has passed an HFS check, it can be considered reliable enough to be used for a server rollback.
  - ◆ **Garbage collection**—Garbage collection is an internal operation that recovers storage space from deleted or expired backups.
- 

### QUESTION 11

A storage administrator has successfully configured EMC Avamar to use Microsoft Windows Active Directory external authentication. Which accounts and/or interfaces can be accessed by users set up to use this authentication?

- A. Avamar Administrator, Enterprise Manager, and Web Access
- B. MCUser, admin, and Enterprise Manager
- C. Avamar Administrator, root, and dpn
- D. MCUser, Web Access, and root

Correct Answer: A

---

### QUESTION 12

A company recently deployed an EMC Avamar Gen4 server with Avamar 6.0 software to protect their data. The backup administrator wants system state protection for their critical Microsoft Windows 2003 servers.

What is the recommended method?

- A. HomeBase embedded feature
- B. Windows Server Backup
- C. NTBackup option
- D. HomeBase embedded with HomeBase server

Correct Answer: A