- **Vendor: VMware**
- **Exam Code: 5V0-21.21**
- **Exam Name: VMware HCI Master Specialist**
- **New Updated Questions from Braindump2go (Updated in October/2022)**

QUESTION 21
An administrator of "vsan-prod" cluster noticed the witness components of VMs are flagged as absent after a failed attempt to replace the vSAN Witness Host. Which action should the administrator take to resolve this issue?

A. Upgrading the vSAN on-disk format
B. Running the vSAN Skyline Health check to ensure there are vSAN Object Health errors and executing the Repair Object Immediately option
C. Using the RVC command: vsan.resync_dashboard ~/computers/vsan-prod
D. Placing the vSAN Witness Host in Maintenance Mode and adding to the vSAN cluster

Answer: B
Explanation:
vSAN Witness Host (so there is strech cluster) must reside in vcenter datacenter container and not be added in vSAN cluster.

QUESTION 22
An architect is designing a vSAN cluster.
Which storage controller option will yield optimal performance?

A. Hugh queue depth
B. Set caching to 50% read on the controller
C. Enable battery write-back caching
D. RAID 0

Answer: A
Explanation:
Storage Controller Queue Depth
There are two important items displayed by the VCG for storage I/O controllers that should be noted. The first of these is “features” and the second is queue depth.
Queue depth is extremely important, as issues have been observed with controllers that have very small queue depths. In particular, controllers with small queue depths (less than 256) can impact virtual machine I/O performance when vSAN is rebuilding components, either due to a failure or when requested to do so when entering maintenance mode.
Design Decision : Choose storage I/O controllers that have as large a queue depth as possible. While 256 are the minimum, the recommendation would be to choose a controller with a much larger queue depth where possible.
https://core.vmware.com/resource/vmware-vsan-design-guide#sec6843-sub14

QUESTION 23
An administrator is planning to deploy cloud-native workloads onto the vSAN Direct datastore.
Which storage policy structure rule is supported?

A. Host-based rules

B. vVOL storage rules
C. Tag-based placement rules
D. Storage performance-based rules

Answer: C
Explanation:
In U2, there would be a specific rule option for vSAN Direct.
https://docs.vmware.com/en/VMware-vSphere/7.0/vmware-vsphere-with-tanzu/GUID-40E5FD5C-E9A0-4D6D-8429-0DD5FE5F0E9F.html

QUESTION 24
An administrator is planning to change a vSAN Storage Policy to apply a Failures To Tolerate (FTT) of 2, using RAID-6. What is the minimum number of vSAN nodes required?

A. 6
B. 4
C. 5
D. 8

Answer: A
Explanation:
2n + 2 is used for raid 5 and 6.
So 2x2 +2 = 6

QUESTION 25
An administrator is planning to deploy workloads on a six node vSAN cluster, and all nodes are distributed equally across three racks.
Which action is required to ensure that the workload VMs remain compliant with the default vSAN policy after a complete rack failure?

A. Add an additional rack with two hosts, and configure vSAN with four fault domains and FTT=1 (erasure coding).
B. Add two additional hosts per rack, and configure vSAN with three fault domains and FTT=1.
C. Add an additional host per rack, and configure vSAN with three fault domains and FTT=2.
D. Add an additional rack with two hosts, and configure vSAN with four fault domains and FTT=1 (mirroring).

Answer: D

QUESTION 26
A company has deployed a 12-node (6-6-1) vSAN 7.0 stretched cluster for all production workloads. The customer currently uses four different vSAN storage policies for running the workloads depending on the applications requirements:
* Policy 1 -Site Disaster Tolerance=Dual Site Mirroring, FTT=Erasure Coding
* Policy 2 -Site Disaster Tolerance=Dual Site Mirroring, FTT=Mirroring
* Policy 3 -Site Disaster Tolerance=None -Keep Data on Preferred, FTT=Mirroring
* Policy 4 -Site Disaster Tolerance=None -Keep Data on Non-Preferred, FTT=Mirroring
During the setup of the vSAN stretched cluster, the following VM/Host Rules were created:
* Preferred Site -Preferred Site workloads should run on DC1 hosts.
* Secondary Site -Secondary Site workloads should run on DC2 hosts.
Which two activities should the administrator complete to ensure that there is no impact to production services during the maintenance window in the Preferred Site? (Choose two.)

A. Change the Site Disaster Tolerance setting in Policy 3 to be "Dual Site Mirroring".
B. Update vSphere DRS site affinity rules so that Preferred Site workloads should not run on hosts in DC1.

C. Change the Site Disaster Tolerance setting in Policy 4 to be "None -Keep Data on Preferred".
D. Change the FTT setting in Policy 3 to be "Erasure Coding".
E. Update vSphere DRS site affinity rules so that Preferred Site workloads must run on hosts in DC2.

Answer: AE
Explanation:
A: to replicate VMs on second site
E: to move compute for those VMs on second site

QUESTION 27
During a maintenance action on a vSAN node, a vSAN administrator noticed that the default repair delay time is about to be reached.
Which two commands must be run to extend the time? (Choose two.)

A. /etc/init.d/vsanmgmtd restart
B. esxcli system settings advanced set -o /VSAN/ClomRepairDelay -i 50
C. esxcli system settings advanced set -o /VSAN/ClomRepairDelay -i 80
D. /etc/init.d/clomd restart
E. /etc/init.d/vsanobserver restart

Answer: CD
Explanation:
Reference: https://kb.vmware.com/s/article/2075456

QUESTION 28
An administrator wants to deploy a desktop and application virtualization solution on top of vSAN. Which VMware product should the administrator install?

A. VMware Dynamic Environment Manager
B. VMware Horizon Apps
C. VMware Workspace One Access
D. VMware Horizon

Answer: D
Explanation:
Reference: https://www.vmware.com/products/horizon/horizon-vsan.html

QUESTION 29
An administrator has been tasked with enabling encryption for existing virtual machines on a vSAN cluster.
Which three prerequisites must be satisfied before completing the task? (Choose three.)

A. Create an encryption storage policy
B. Enable Data-In-Transit encryption first
C. Enable that the virtual machines are powered on
D. Verify if a role with privilege "Cryptographic operations.Encrypt new" is assigned
E. Verify if a role with privilege "Cryptographic operations.Migrate" is assigned
F. Establish a trusted connection with the KMS

Answer: ADF
Explanation:
Because Before you can create encrypted virtual machines, you must create an encryption storage policy. You create the storage policy once, and assign it each time you encrypt a virtual machine or virtual disk.
https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.vsphere.security.doc/GUID-7DE1ED8F-880B-421E-B27B-5AAA58454AFA.html

QUESTION 30
Upon checking the latency goal under vSAN performance diagnostics, the vSAN Administrator sees this message displayed:
The increase in latency in the vSAN stack might be beyond expected limits. Which two root causes can be identified to help remediate the issue? (Choose two.)

A. vSAN VMKemel portgroup is configured with the "Route based on IP hash" teaming policy
B. vSAN encryption is enabled
C. Large packet losses and retransmissions on the network layer
D. Incorrect sizing of the disk groups capacity disks
E. One or more disk groups are congested

Answer: CE
Explanation:
Reference: https://kb.vmware.com/s/article/2150018

QUESTION 31
An architect is designing for a production vSAN cluster, and the customer introduced these requirements related to File Services:
- A minimum of 12 files shares.
- 30TB NFS capacity to mount workload VMs.
What should be the architect's recommendations?

A. Point out the risks regarding putting the hosts in maintenance mode in terms of FSVM.
B. Confirm on all of the requirements and move forward with the physical design.
C. Raise concerns regarding support when running VMs on an NFS share as risk.
D. Highlight the required number of nodes required for the vSAN cluster as a constraint.

Answer: C
Explanation:
https://core.vmware.com/resource/vsan-frequently-asked-questions-faq#section5

QUESTION 32
An administrator has received an alert indicating that a single capacity device is close to failing within the production vSAN Cluster. The administrator must now complete preemptive maintenance on the vSAN Cluster without impacting the availability of workloads or vSAN File Services. The following information is known about the vSAN Cluster:
* vSAN 7.x Cluster
* vSAN node count: 8
* De-Duplication and Compression: Enabled.
* Encryption: Disabled
* Current Utilization: 45%
* Disk Groups: 2
* Devices per node: 2 x 400 GB SSD, 6 x 1.8 TB SSD
Which three steps should the administrator take to successfully complete the task? (Choose three.)

A. Remove the affected Disk Group from the vSAN Cluster, and choose Full Data Migration.
B. Replace the failed disk with a storage device that is identical in class and capacity.
C. Remove the affected Disk Group from the vSAN Cluster, and choose No Data Migration.
D. Replace the failed disk with a storage device that is identical in class but smaller in capacity.
E. Put the affected vSAN host into maintenance mode to physically replace the storage device.
F. Remove the affected Disk from the Disk Group, and choose Full Data Migration.

Answer: ABE
Explanation:
If you upgrade the capacity device, verify the following requirements:

- Verify that the cluster contains enough space to migrate the data from the capacity device.
- Place the host in maintenance mode. See Place a Member of Virtual SAN Cluster in Maintenance Mode.
"Select the flash capacity device or magnetic disk, and click Remove selected disk(s) from disk group."
https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-4E3390C1-6C50-49E5-AEB6-C9BC037979A1.html

QUESTION 33
An administrator managing a vSAN cluster of six-nodes with policy FTT-2/RAID-6 decided to put one of the nodes in maintenance mode using the "Full-data migration" option.
What will happen after this action is taken?

A. The host will enter in maintenance mode and the data will remain accessible until the host exits maintenance mode.
B. The system will prompt to add an additional host to the cluster in order to preserve the policy compliance.
C. The host will enter in maintenance mode and only data with no redundancy will remain accessible.
D. The host will enter into maintenance mode if both components of a certain object are residing on that host, then one of the components will be moved to another available host.

Answer: B
Explanation:
Let's take a look at a few unique scenarios with regard to maintenance mode. First, let's see what will happen if you have 6 hosts within your cluster, you have applied a policy containing FTT=2/RAID-6, and you want to place a host in maintenance mode using the 'Full data migration' option. This means all the data residing on the host will be evacuated to another host within the cluster. With this type of data configuration, the system will prompt you to add an additional host to the cluster in order to preserve the policy compliance. The policy will always require there must be two failures that can be tolerated, even during cluster reduction due to maintenance mode removing a host. Note that a minimum of six hosts is required to support a storage policy with RAID-6(FTT=2) erasure coding.
https://blogs.vmware.com/virtualblocks/2020/02/06/what-happens-vsan-host-in-maintenance-mode/

QUESTION 34
A 4-node vSAN cluster is configured with an erasure coding storage policy. The Ensure Accessibility maintenance mode was selected. While performing the maintenance, a second node fails.
What will be the impact on the vSAN cluster?

A. There will be no impact on performance.
B. The VMs will no longer be accessible.
C. The performance will be degraded.
D. The VMs will be in a suspended state.

Answer: B
Explanation:
As 4 Node Eraser code is RAID 5 and can only tolerate one host offline, so if 2nd one fails then Some VMs will be inaccessible depending where the components are and once the host in maintenance mode is back online then depending if all components of vms are there then become accessible.

QUESTION 35
An architect is working with vSAN and setting the fault domains to support FTT=1.
How many fault domains will be needed?

A. 2
B. 3
C. 4
D. 1

Answer: B
Explanation:
2n+1 = 3

QUESTION 36
An administrator has an absent capacity disk.
Which action, if any, should the administrator take to resolve the problem?

A. Wait, and vSAN will rebuild it.
B. Replace the faulty disk.
C. Replace the faulty host.
D. Verify the host is not isolated.

Answer: A

QUESTION 37
A customer is planning to migrate their physical Microsoft SQL Server clustered workloads to vSAN enabled vSphere clusters.
The following requirements must be met:
* Each MSSQL cluster is made up of 3 nodes
* Highest possible availability against node failures
* Some of the vSAN clusters will only consume storage
What should the architect recommend?

A. vSAN iSCSI Target Service
B. Stretched vSAN Cluster
C. vSAN Direct
D. vSAN File Services

Answer: A
Explanation:
vSAN 6.7 expands the functionality of the vSAN iSCSI Target service to provide the SCSI-3 persistent reservations support for shared disks for windows failover cluster if using the SQL Server FCI, high availability mode is a requirement. The vSAN iSCSI Target service at the vSAN cluster level should be enabled for this purpose. VSAN streched cluster may be used to increase the data availability across data centres.
https://blogs.vmware.com/virtualblocks/2019/03/26/considerations-for-running-microsoft-sql-server-workloads-on-vmware-vsan/

QUESTION 38
A company has engaged a consultant to upgrade an existing vSAN cluster to vSAN 7.0 U1. During the discovery phase, the consultant found the following information about the existing environment:
* The VMware vCenter Server has recently been upgraded from VMware vSphere 6.7 U3 to version 7.0 U1.
* The vSAN Cluster was recently expanded with identical hardware specification, but from a different hardware vendor.
* The hardware for each vSAN node is listed on the vSAN Compatibility Guide (VCG) for vSAN 7.
* The vSAN Cluster has the following configuration:
- vSAN version: 6.6.1
- Number of vSAN nodes: 10
- Encryption: enabled
- Deduplication and Compression: enabled
- vSAN Capacity Utilization: 60%
* Each vSAN node has the following configuration:
- VMware vSphere ESXi version: 6.5 Update 3
- CPU: 2 processors, 20 cores
- RAM: 768GB RAM.
- Disk: 2 Cache SSDs and 6 Capacity SSDs
- Network: 4 x 10GbE
Which three recommendations should the consultant make to ensure all data remains protected in the event of a vSAN

failure? (Choose three.)

A. The Full data migration maintenance mode option must be chosen to protect the data during the upgrade.
B. The Ensure accessibility, migration maintenance mode option must be chosen to protect the data during the upgrade.
C. The upgrade process should be completed using host upgrade baselines in VMware vSphere Lifecycle Manager (vLCM).
D. The vSAN nodes should be upgraded to vSphere ESXi 7.0 U1.
E. The upgrade process should be completed using images in VMware vSphere Lifecycle Manager (vLCM).
F. The vSAN nodes should be upgraded to vSphere ESXi 6.7 U3.

Answer: ACD
Explanation:
https://blogs.vmware.com/virtualblocks/2018/10/29/a-closer-look-at-emm/

QUESTION 39
multiple data centers, the customer relayed the following information:
* Highest possible mitigation during a host failure in terms of capacity.
* A constraint in this year's IT budget.
What should the architect recommend?

A. Enable operations reserve.
A minimum cluster of 3 vSAN nodes.
B. Enable host build reserve.
A minimum cluster of 4 vSAN nodes.
C. Enable performance services.
A minimum cluster of 6 vSAN nodes.
D. Enable IOInsight Metrics.
A minimum cluster of 2 vSAN ROBO nodes.

Answer: B
Explanation:
Performance services and IOinsight Metrics used for performance analysis. Operation reserve for internal VSAN operations.
https://blogs.vmware.com/virtualblocks/2020/09/24/effective-capacity-management-with-vsan-7-update-1/

QUESTION 40
A company has engaged a consultant to upgrade an existing vSAN cluster to vSAN 7.0 U1. The company wants to ensure that the same vSAN process can be used in the future. During the discovery phase, the consultant found the following information about the existing environment:
* The vCenter Server is currently version 7.0.
* The vSAN Cluster has the following configuration:
- vSAN version: 7.0
- Number of vSAN nodes: 6
- Encryption: enabled
- Deduplication and Compression: enabled
- Fault Domains: 1
- vSAN Capacity Utilization: 60%
* Each vSAN node has the following configuration:
- ESXi version: VMware vSphere 7.0
- CPU: 2 processors, 20 cores
- RAM: 1024GB RAM.
- Disk: 2 Cache SSDs and 6 Capacity SSDs
- Network: 4 x 10GbE
All current hardware (which is from a single vendor) is listed on the vSAN Compatibility Guide for vSAN 7.

Which three recommendations should the consultant make to ensure that the vSAN cluster upgrade is completed? (Choose three.)

A. Upgrade all vSAN nodes to VMware vSphere 7.0 U1 using the baselines capability within VMware Update Manager (VUM).
B. Disable vSAN Encryption before starting the upgrade process.
C. Upgrade all vSAN nodes to VMware vSphere 7.0 U1 using the images capability within VMware Update Manager (VUM).
D. Set VMware Distributed Resource Scheduling (DRS) to partially automated.
E. Upgrade to VMware vCenter Server 7.0 U1.
F. Choose the Allow reduced redundancy option.

Answer: AEF
Explanation:
vSAN build recommendations are provided through vSAN system baselines for vSphere Lifecycle Manager. These system baselines are managed by vSAN. They are read-only and cannot be customized.
https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.vsphere.vsan.doc/GUID-E87F7946-1EDE-45EE-9087-823F7E61FABF.html

QUESTION 41
An administrator wants to deploy Kubernetes on an end-to-end VMware stack, using VMware vSAN for storage.
Which VMware product should the administrator install as the Kubernetes platform choice?

A. VMware Tanzu Kubernetes Grid
B. VMware Tanzu Data services
C. VMware Tanzu Build service
D. VMware Tanzu Mission Control

Answer: A
Explanation:
https://docs.vmware.com/en/VMware-vSphere/7.0/vmware-vsphere-with-tanzu/GUID-DC22EA6A-E086-4CFE-A7DA-2654891F5A12.html

QUESTION 42
Upon investigating a workload performance issue, a vSAN administrator observed a high backend IOPs on a vSAN cluster.
Which two causes explain this behavior? (Choose two.)

A. The cluster DRS threshold has been set to Aggressive.
B. There is a vSAN node failure.
C. The vSAN Resync throttling is enabled.
D. The object repair timer value has been increased.
E. The vSAN policy protection level has changed from FTT=0 to FTT=1.

Answer: BE
Explanation:
High backend IOPS can be caused by rebuild/resync tasks.
https://core.vmware.com/resource/troubleshooting-vsan-performance#_Toc536646878

QUESTION 43
An administrator wants to check the performance metrics for the workloads and their virtual disks that are running on a vSAN cluster, but no statistical charts are displayed in the vSphere client.
Why is this behavior being seen?

A. vSAN network diagnostic mode is not enabled.

B. vSAN proactive tests haven't been run yet.
C. vSAN performance service is turned off.
D. vSAN performance verbose mode is not enabled.

Answer: C
Explanation:
Prerequisites
The vSAN performance service must be turned on before you can view performance charts.
https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.vsphere.vsan-monitoring.doc/GUID-EF27701E-7BAC-4E76-9D2F-E1C58CAAB06D.html

QUESTION 44
A 30-minute power maintenance window has been approved on Sunday. Due to a delay, the maintenance took 20 minutes longer to finish.
During this time, the vSAN administrator noticed that one of the clusters nodes was affected by a power shortage, as it was connected to an affected power source. The default vSAN storage policy has been applied.
What will be the status of the vSAN objects on the affected host immediately after it is recovered?

A. The cluster will be partitioned and the vSAN host will need to be rejoined.
B. A rebuild of the affected objects will occur.
C. All objects will remain accessible.
D. All objects on the affected host will be lost.

Answer: C
Explanation:
The 60 Minutes Delay timer had not expired, the status of the objects will be NON complaint but will be accessible.

QUESTION 45
Due to the success of the recently deployed developer-only private cloud solution, a company has a new requirement to at least double the usable capacity in their all-flash vSAN cluster. The vSAN cluster is deployed into a co-located datacenter that is owned by a third-party hosting company. The hosting company charges a fixed monthly cost for rack space and power consumption. The service owner has been given a limited budget for additional hardware purchases, but not for on-going co-location costs.
The current vSAN cluster has the following configuration:
* 10 vSAN Nodes with 2 CPUs (20 cores), 512 GB RAM
* 1 Disk Group per vSAN node
- 1 x 400 GB
- 4 x 1.8 TB
* De-duplication and Compression is enabled.
* vSAN Capacity is currently:
- Total: 72 TB
- Usable: ~40 TB (FTT1/RAID1) and ~60 TB (FTT1/RAID5).
As a result of any action taken, the service owner would like to ensure that overall availability of the vSAN cluster is increased.
Which two recommendations meet the requirement to increase capacity while maintaining service availability? (Choose two.)

A. Install an additional 400 GB SSD and 4 x 1.8 TB SSDs per vSAN node.
B. Update the existing Disk Group, and claim the newly installed drives for each node.
C. Create a new Disk Group, and claim the newly installed cache and capacity SSD drives for each node.
D. Install an additional 3 x 1.8 TB SSDs per vSAN node.
E. Replace existing SSDs with an 800 GB SSD and 4 x 3.8 TB SSDs per vSAN node.

Answer: AC
Explanation:

Adding one cache disk and capacity disks, and create a new diskgroup.

QUESTION 46
After a vSAN Witness Appliance network configuration, the vSAN administrator notices that vSAN traffic flows from vmk0 (Management Traffic) rather than vmk1 (vSAN Traffic).
Which step should be taken to resolve this issue?

A. Configure vmk0 with IP address on the same range as that of vmk1.
B. Tag the vmk0 for vSAN traffic.
C. Configure vmk1 with IP address on the different network than that of vmk0.
D. Tag the vmk1 for Witness traffic.

Answer: C
Explanation:
The vmk1 interface cannot be configured with an IP address on the same range as that of vmk0. This is because Management traffic and vSAN traffic use the default TCP/IP stack. If both vmk0 and vmk1 are configured on the same range, a multihoming condition will occur and vSAN traffic will flow from vmk0, rather than vmk1.