

5V0-21.19

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5V0-21.19



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Exam A

QUESTION 1

A single disk in a vSAN disk group suffers from an unrecoverable hardware failure. This causes vSAN to set the health status for all disks in the group to Permanent disk loss, indicating disk failure.

Assuming all other disks have not suffered from a hardware failure, why would vSAN mark all disks in the group as failed?



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- A. The vSAN disk management service has failed.
- B. The affected vSphere host is offline.
- C. The key management server is offline.
- D. Deduplication and compression are enabled on the vSAN cluster.



Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 2

In stretched clusters, what is a benefit of implementing a virtual witness rather than a physical witness?

- A. Reduced vSphere licensing
- B. Shared metadata between separate clusters
- C. Increased vSAN datastore capacity
- D. Increased compute for running VMs

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://cormachogan.com/2015/09/11/a-closer-look-at-the-vsan-witness-appliance/>

QUESTION 3

The objects on a 4-node vSAN cluster are assigned a RAID-5 policy. A network outage occurs causing host one to lose connectivity with the rest of the cluster. Seventy-five minutes elapse.

What is the health state of the objects?

- A. Reduced availability with no rebuild
- B. Reduced availability with no rebuild – delay timer
- C. Non-availability related incompliance [non-compliance]
- D. Reduced availability

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:



QUESTION 4

A vSAN 5-node cluster has two sets of VMs, each associated with a separate storage policy.

-Group A (Storage Policy: FTT=0)

-Group B (Storage Policy: FTT=2)

What are two possible results when two hosts in the vSAN cluster fail permanently? (Choose two.)

- A. VMs in Group B will become inaccessible if a third host permanently fails.
- B. vSAN will rebuild data associated with Group A.
- C. VMs in Group A might experience data inaccessibility.
- D. VMs in Group B might experience data loss.
- E. A host can be put into maintenance mode without impacting VMs in either Group A or B.

Correct Answer: CD

Section: (none)

Explanation

Explanation/Reference:

QUESTION 5

A 3-node vSAN cluster will take which two actions, when a drive is physically removed from a vSAN node? (Choose two.)

- A. Marks all components on that device as absent
- B. Marks all components on that device as degraded
- C. Waits for the configured delay timer before rebuild
- D. Marks all components on that device as stale
- E. Starts component rebuild immediately

Correct Answer: AC

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://storagehub.vmware.com/t/vmware-vsan/vsan-6-7-proof-of-concept-guide/disk-failures-9/>

QUESTION 6

A vSAN cluster has this configuration:

- 4 hosts with 1 disk group per host
- Each disk group contains 1 cache device and 7 capacity devices

What are two ways to increase the vSAN datastore storage capacity? (Choose two.)

- A. Add a host to the cluster
- B. Add a cache device to each disk group
- C. Add a capacity drive to each disk group
- D. Replace a cache device with a larger cache device
- E. Add a disk group to each host

Correct Answer: AE

Section: (none)

Explanation

Explanation/Reference:

QUESTION 7

vCenter Server is offline.

What are two ways to check the health of a vSAN cluster? (Choose two.)

- A. ESXi system logs on vSAN datastore
- B. vSphere Host Client
- C. esxcli
- D. HCI Bench
- E. esxtop

Correct Answer: BC

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.security.doc/GUID-6C181D08-6650-4AD1-92D1-AAFDA3A3E38C.html>

QUESTION 8

What are two purposes of a vSAN storage policy? (Choose two.)

- A. Determine how storage objects are provisioned
- B. Determine vSAN encryption level
- C. Guarantee the required level of service
- D. Enable deduplication and compression
- E. Enable TRIM/UNMAP



Correct Answer: AC

Section: (none)

Explanation

Explanation/Reference:

Reference: <http://www.vmwarearena.com/understanding-vmware-virtual-san-storage-policies-detailed-view/>

QUESTION 9

Which two conditions should be verified before removing the ESXi host from a vSAN cluster? (Choose two.)

- A. Data evacuation is complete.
- B. Encryption is disabled.

- C. ESXi host is in maintenance mode.
- D. Resyncs are running.
- E. All objects are currently healthy.

Correct Answer: CE

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://vsan-essentials.gitbooks.io/vsan-6-2/content/chapter7.html>

QUESTION 10

In a 10-node hybrid vSAN cluster, each node has seven 4TB magnetic disks and one 2TB SSD.
What is the raw storage capacity of the vSAN datastore?

- A. 140TB
- B. 150TB
- C. 280 TB
- D. 300 TB

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 11

A company implements a vSAN environment with linked clone virtual desktops and homogeneous desktop operating systems. During the last three months, users have experienced intermittent high latency, degraded performance, and lockout from desktops. Which two methods should an administrator use to monitor and respond to the issues? (Choose two.)

- A. vRealize Log Insight
- B. vRealize Automation
- C. Live Optics
- D. HCI Bench
- E. vRealize Operations Manager



Correct Answer: AC

Section: (none)

Explanation

Explanation/Reference:

QUESTION 12

Which two features are available with the Cluster Quickstart wizard? (Choose two.)

- A. Deploy a vSAN Witness appliance
- B. Update storage controller drivers
- C. Check for errors and inconsistencies
- D. Setup lockdown mode for vSAN hosts
- E. Perform pre-check evaluation for data migration

Correct Answer: BC

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://docs.vmware.com/en/VMware-vSphere/6.7/com.vmware.vsphere.vsan-planning.doc/GUID-CF9767B6-B3F5-4787-9AF3-D661987AE525.html>

QUESTION 13

A system administrator running a 6-node cluster is trying to enable the deduplication and compression feature. During the process of switching it on, the General vSAN error occurs.

What is the possible reason the General vSAN error occurred?

- A. Force provisioning setting is required.
- B. The cluster is a hybrid environment.
- C. Storage policies require FTT=1.
- D. The cluster is an all-flash environment.

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

Reference: <http://www.optiodata.com/documents/optio/datasheets/dell-emc-vxrail-appliance-techbook.pdf>

QUESTION 14

The vSAN host memory needs to be replaced and the entire operation is expected to take 90-120 minutes.

Which vSAN advanced setting can be adjusted to avoid rebuild operations during the host hardware maintenance?

- A. Site Read Locality
- B. Forced Provisioning
- C. Object Repair Timer
- D. Thin Swap

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 15

You are designing a vSAN stretched cluster solution.

What is the maximum number of nodes possible for this solution?

- A. 15 per data site + 1 witness host
- B. 30 per data site + 1 witness host
- C. 32 per data site + 1 witness host
- D. 64 per data site + 1 witness host

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 16

What are two recommended reasons for configuring a cluster with at least one node in addition to the minimum required number? (Choose two.)

- A. To ensure object accessibility
- B. To support the use of RAID-6
- C. To provide more flexible storage policy options

- D. To provide full protection during maintenance mode operations
- E. To support data at rest encryption on vSAN hybrid clusters

Correct Answer: CD

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://blogs.vmware.com/virtualblocks/2018/05/24/vsan-deployment-considerations/>

QUESTION 17

vSAN is configured with a storage policy with a Failures To Tolerate (FTT) set to three. Which type of redundancy is being used?

- A. RAID-0 (Striping)
- B. RAID-1 (Mirroring)
- C. RAID-6 (Erasure Coding)
- D. RAID-5 (Erasure Coding)

Correct Answer: B

Section: (none)

Explanation



Explanation/Reference:

Reference: https://www.sbarjatiya.com/notes_wiki/index.php/About_VSAN_6.6

QUESTION 18

When using vSAN Encryption, where does the Key Encryption Key persistently reside?

- A. in /etc/vmware/ssl on each vSAN host
- B. in the KMS server
- C. in a VM configuration file on vSAN
- D. in the vCenter Server cache

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://blogs.vmware.com/virtualblocks/2018/07/13/understanding-ve-booting-w-vc-unavailable/>

QUESTION 19

What is a mandatory requirement for a vSAN stretched cluster?

- A. Two witness hosts protected by vSphere Fault Tolerance
- B. Minimum of two guaranteed lines of 10Gbps bandwidth
- C. vSphere Replication configured between the data sites
- D. Latency between data sites must be less than or equal to 5ms

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://vsan-essentials.gitbooks.io/vsan-6-2/content/chapter8.html>

QUESTION 20

An architect is asked to design a vSAN cluster with these requirements:

- Supports erasure coding storage policy
- Minimized inaccessibility from single device failures
- Ability to re-protect data after a failure

The desired configuration should be able to survive a single failure.



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Which configuration satisfies the design requirements?

- A. 3-node hybrid vSAN cluster

- B. 4-node hybrid vSAN cluster
- C. 4-node all-flash vSAN cluster
- D. 5-node all-flash vSAN cluster

Correct Answer: D

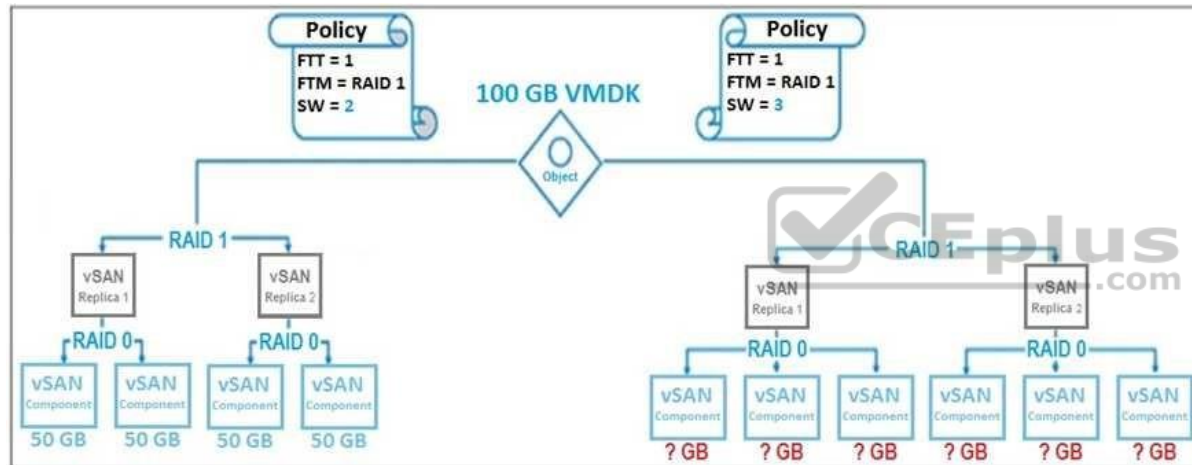
Section: (none)

Explanation

Explanation/Reference:

QUESTION 21

Refer to the exhibit.



In a 2-node vSAN environment, a storage administrator has setup a vSAN storage policy.

When the stripe width is changed to three, what is the approximate component size of each replica marked in red?

- A. 33GB
- B. 50GB

- C. 66GB
- D. 100GB

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 22

Which vSAN Health Check category is viewed to confirm supported storage controller drivers are in use across all hosts in the cluster?

- A. Capacity view
- B. Device mapping
- C. vSAN Build Recommendations
- D. Hardware compatibility

Correct Answer: D

Section: (none)

Explanation



Explanation/Reference:

Reference: <https://kb.vmware.com/s/article/2149405>

QUESTION 23

A vSAN administrator is building a new vSAN cluster and each host only has two physical uplinks configured in a team. What can the administrator use to ensure vSAN receives the necessary bandwidth while maintaining high availability?

- A. Route based on IP hash
- B. A dedicated uplink for vSAN traffic
- C. Shared uplinks for all traffic
- D. Network I/O control

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 24

In a vSAN Stretched Cluster configuration, when is the non-preferred site determined to be isolated?

- A. When the master node is unable to communicate with any non-preferred site nodes
- B. When the nodes in the non-preferred site are unable to communicate with the vSAN Witness
- C. When the backup node is unable to communicate with the preferred site
- D. When the master node is unable to communicate with the backup node

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 25

In a vSAN all-flash configuration, which two design tasks influence the selection of flash and capacity disks? (Choose two.)

- A. Reserving 10 percent of cluster CPU
- B. Reserving 8 vCPU and 32GB vRAM for controller VM
- C. Determining workload type
- D. Selecting appropriate flash device endurance
- E. Sizing two flash drives for every disk group

Correct Answer: DE

Section: (none)

Explanation

Explanation/Reference:

QUESTION 26

A vSAN Witness has connectivity to a vSAN cluster with supported maximum latency of 500 milliseconds round-trip time (RTT). Which vSAN cluster type is the vSAN Witness a member of?

- A. vSAN stretched cluster with 4 nodes in each site

- B. vSAN 2-node direct connected cluster
- C. 4-node vSAN cluster using erasure coding
- D. 16-node vSAN cluster with nested fault domains

Correct Answer: B

Section: (none)

Explanation

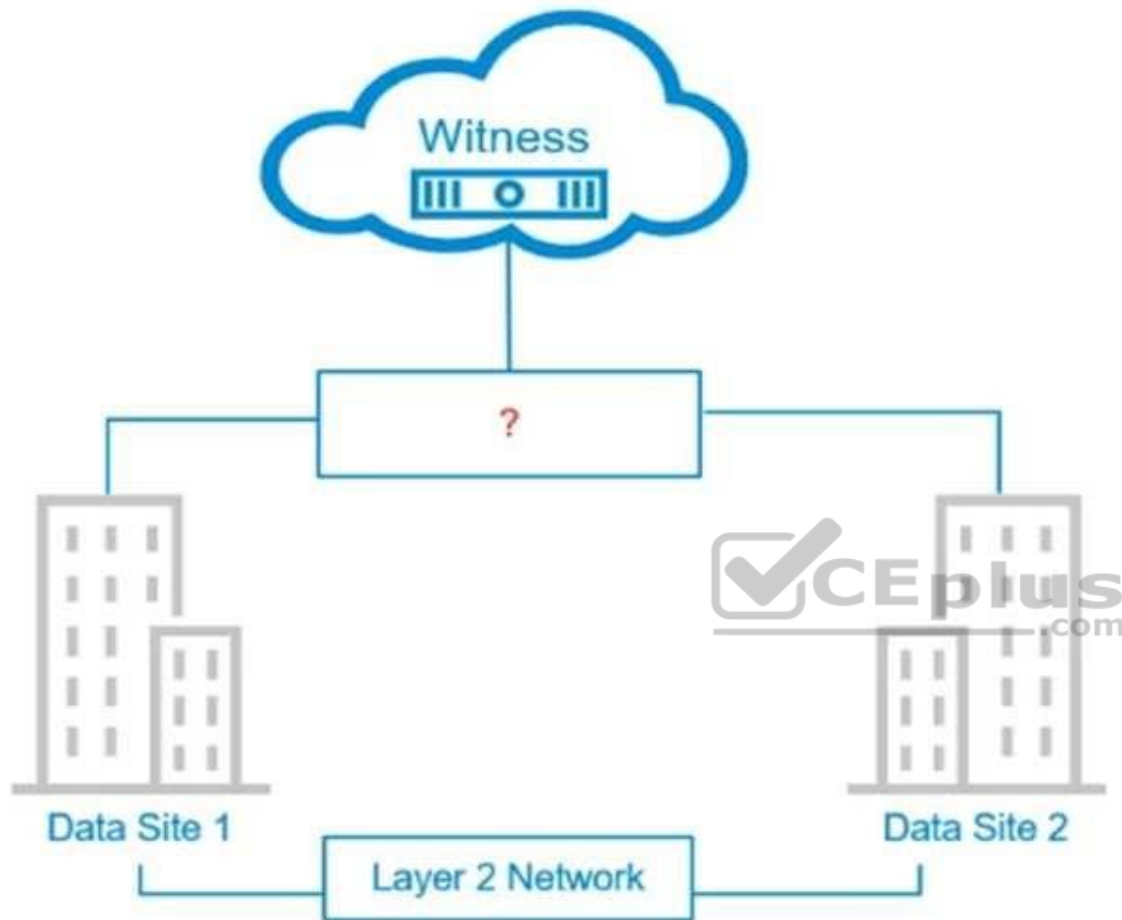
Explanation/Reference:

Reference: [https://book.akij.net/eBooks/2018/March/5ab76ee97f532/SAnet.cd.EssentialVirtualSAN\(VSAN\).pdf](https://book.akij.net/eBooks/2018/March/5ab76ee97f532/SAnet.cd.EssentialVirtualSAN(VSAN).pdf) (56)

QUESTION 27

Refer to the exhibit.





Which networking requirement fulfills the connectivity between the Data Sites and the Witness node?

- A. Extended Data Site network
- B. vMotion network

- C. Direct Connect network
- D. Layer 3 network

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://storagehub.vmware.com/t/vmware-vsan/vsan-2-node-guide/network-design-considerations-7/>

QUESTION 28

Which type of encryption is used for the data encryption key on the vSAN datastore?

- A. TLS 1.1
- B. TLS 1.2
- C. AES-XTS 256
- D. AES-XTS 128

Correct Answer: C

Section: (none)

Explanation



Explanation/Reference:

Reference: <https://searchvmware.techtarget.com/tip/VSAN-Encryption-What-it-is-what-it-does-and-how-to-use-it>

QUESTION 29

Which solution is used to apply upgrades to a vSAN cluster?

- A. VMware vRealize Operations Manager
- B. VMware Update Manager
- C. VMware vRealize Automation
- D. VMware Lifecycle Manager

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 30

How do vSAN fault domains relate to vSAN component placement?

- A. Storage policies are inherited by vSAN fault domains.
- B. vSAN objects only exist in a single vSAN fault domain.
- C. The number of vSAN fault domains determines the number of components of an object.
- D. Storage policies use vSAN fault domains for component placement.

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 31

An administrator wants to increase the capacity of a disk group cache device.

What is required to increase the cache device size?

- A. Hot swap the disk group cache device.
- B. Perform a storage vMotion between disk groups.
- C. Put the disk group in maintenance mode and swap the cache device.
- D. Recreate the disk group with a new cache device.

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://www.driftar.ch/index.php/2017/09/05/how-to-delete-and-change-vmware-vsan-disk-groups/>

QUESTION 32

What happens to a disk group during cache disk replacement?

- A. goes offline
- B. changes on-disk format

- C. becomes degraded
- D. remains online

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 33

What are two reasons why a vCenter UI can show a **Noncompliant** status for a VM storage object? (Choose two.)

- A. The object is no longer fully compliant with the associated storage policy.
- B. A storage hardware failure has caused permanent data loss for the object.
- C. The VM storage compliance alarm has been triggered for that object.
- D. The object is not associated with a guest VM.
- E. The object is not associated with a storage policy.

Correct Answer: AE

Section: (none)

Explanation

Explanation/Reference:

QUESTION 34

How are components marked on a capacity device that is inaccessible?

- A. reduced availability
- B. active-stale
- C. degraded
- D. absent

Correct Answer: C

Section: (none)

Explanation



Explanation/Reference:

Explanation:

The vSAN components that reside on the magnetic disk or flash capacity device are marked as degraded.

Reference: <https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-9A2DCE0B-CFA1-41C1-97CE-DA56A55426EA.html>

QUESTION 35

An administrator is configuring vSAN Encryption on an existing hybrid cluster. During the configuration, the administrator is unable to see any information for the Key Management Server (KMS) cluster in the dropdown menu.

What is necessary for the KMS cluster options to populate?

- A. vSAN encryption requires all-flash configurations.
- B. vSAN encryption needs to be enabled during the creation of a new vSAN cluster.
- C. The Key Management Server needs to be added to vCenter.
- D. vSAN encryption is enabled at the VM level by storage policies.

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

**QUESTION 36**

What is the formula for determining the minimum number of vSAN hosts in a cluster necessary to support a Failures To Tolerate (FTT) policy, where $FTT=n$?

- A. $n+1$
- B. $n+2$
- C. $2n+1$
- D. $2n+2$

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

Explanation:

To tolerate n failures, you need $2n + 1$ ESXi host in the vSAN cluster.

Reference: <https://searchvmware.techtarget.com/answer/How-can-a-VM-storage-policy-improve-vSAN-cluster-redundancy>

QUESTION 37

Which two group types are used to determine capacity breakdown in a vSAN datastore? (Choose two.)

- A. network
- B. CPU
- C. data
- D. memory
- E. object

Correct Answer: CE

Section: (none)

Explanation

Explanation/Reference:

Reference: <http://www.virtualizationblog.com/vmware-vsan-capacity-management-and-utilization/>

QUESTION 38

Where are the performance metrics for Write Buffer Free percentage located?

- A. host level vSAN performance metrics
- B. vSAN capacity graphs
- C. vSAN Health Check
- D. cluster level vSAN performance metrics

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://docs.vmware.com/en/vRealize-Operations-Manager/8.0/com.vmware.vcom.core.doc/GUID-97A69368-F085-451B-A53C-2210C1554A9D.html>

QUESTION 39

A vSAN administrator has three available racks and six vSAN hosts.

What can a vSAN administrator use to protect against a rack failure while maximizing resources?

- A. explicit fault domain

- B. vSAN stretched cluster
- C. 2-node configuration
- D. RAID-6/FTT=2

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-8491C4B0-6F94-4023-8C7A-FD7B40D0368D.html>

QUESTION 40

vSAN is configured with a storage policy with a Failures To Tolerate (FTT) set to three.

What is the minimum number of hosts required in this vSAN cluster?

- A. 4
- B. 5
- C. 6
- D. 7

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://docs.ovh.com/gb/en/private-cloud/vmware-vsan/>

QUESTION 41

What could cause a vSAN stretched cluster to fail?

- A. 5ms round-trip time (RTT) between data sites
- B. blocked UDP ports on the firewall between data sites
- C. Layer 3 communication from the data sites to the witness site
- D. static routes between the witness site and data site

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 42

Which two VMware vSphere command-line interface utilities allow an administrator to project the impact of a host failure upon cluster resources? (Choose two.)

- A. vdaq
- B. rvc
- C. esxtop
- D. esxcli
- E. dcui

Correct Answer: BD

Section: (none)

Explanation

Explanation/Reference:



QUESTION 43

Which fault tolerance method protects business data and achieves storage space efficiency?

- A. RAID-0
- B. RAID-1
- C. RAID-5
- D. RAID-10

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://www.prepressure.com/library/technology/raid>

QUESTION 44

A 100GB virtual disk object has this storage policy assigned to it:

- Site disaster tolerance: None – standard cluster
- Failures To Tolerate: 1 failure – RAID-1 (Mirroring)
- Number of disk stripes per object: 1

What is the maximum amount of raw vSAN storage capacity consumed by the virtual disk?

- A. 100GB
- B. 133GB
- C. 200 GB
- D. 255GB

Correct Answer: C

Section: (none)

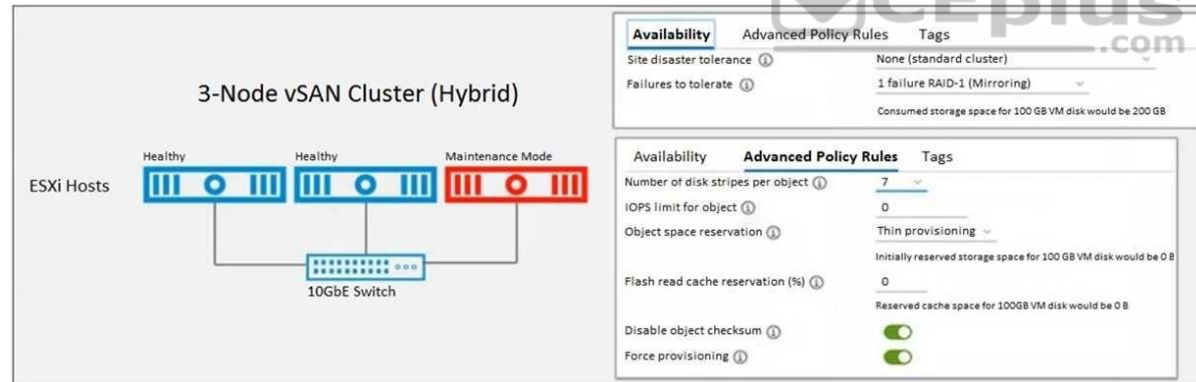
Explanation

Explanation/Reference:

Reference: <http://www.vmwarearena.com/understanding-vmware-virtual-san-storage-policies-detailed-view/>

QUESTION 45

Refer to the exhibit.



A storage policy has been created for the 3-node vSAN cluster in the exhibit. A VM is deployed using this policy.

What is the expected behavior?

- A. VM will be deployed but remain non-compliant.
- B. VM will be deployed and is reported compliant.

- C. Force provisioning will be turned off automatically.
- D. VM deployment fails.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 46

What is the maximum network latency round-trip time (RTT) requirement for vSAN stretched clusters from data site to data site?

- A. 5ms
- B. 10ms
- C. 100ms
- D. 200ms

Correct Answer: A

Section: (none)

Explanation



Explanation/Reference:

Explanation:

VMware requires a maximum latency of no more than 5 ms RTT (Round-Trip Time) between data sites and no more than 200 ms RTT between data sites and the witness host.

Reference: <https://download3.vmware.com/vcat/vmw-vcloud-architecture-toolkit-spv1-webworks/index.html#page/Storage%20and%20Availability/Architecting%20VMware%20vSAN%206.2/Architecting%20Virtual%20SAN%206.2.2.101.html>

QUESTION 47

When would disabling Read Locality be beneficial for a 2-node vSAN?

- A. when using all-flash disk groups
- B. when using hybrid disk groups
- C. when using erasure coding
- D. when using witness traffic separation

Correct Answer: D

Section: (none)
Explanation

Explanation/Reference:

Reference: <https://www.virtualizationhowto.com/2019/09/two-node-vsan-performance-tip-disable-site-read-locality/>

QUESTION 48

Refer to the exhibit.



What is the minimum number of data nodes across all sites in a vSAN stretched cluster configuration with the above storage policy?

- A. 4
- B. 6
- C. 8
- D. 9



Correct Answer: B

Section: (none)
Explanation

Explanation/Reference:

QUESTION 49

When should an administrator enable Resynchronization Throttling?

- A. when a host fails to exit maintenance mode
- B. when vSAN host CPU utilization is above 80%
- C. when directed by VMware Global Support Services
- D. when vSAN datastore free space is less than 20%

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 50

An administrator is designing a vSAN cluster for performance driven workloads.

Which design decision will provide more I/O paths to the vSAN cluster?

- A. add cache devices to disk groups
- B. add compute-only nodes
- C. add disk groups to each host
- D. add CPUs to each host

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:



QUESTION 51

A group of vSAN components that reside on a failed drive are marked **degraded**.

How long does vSAN wait by default, before rebuilding these components on other healthy drives in the cluster?

- A. 0 minutes
- B. 5 minutes
- C. 30 minutes
- D. 60 minutes

Correct Answer: A

Section: (none)

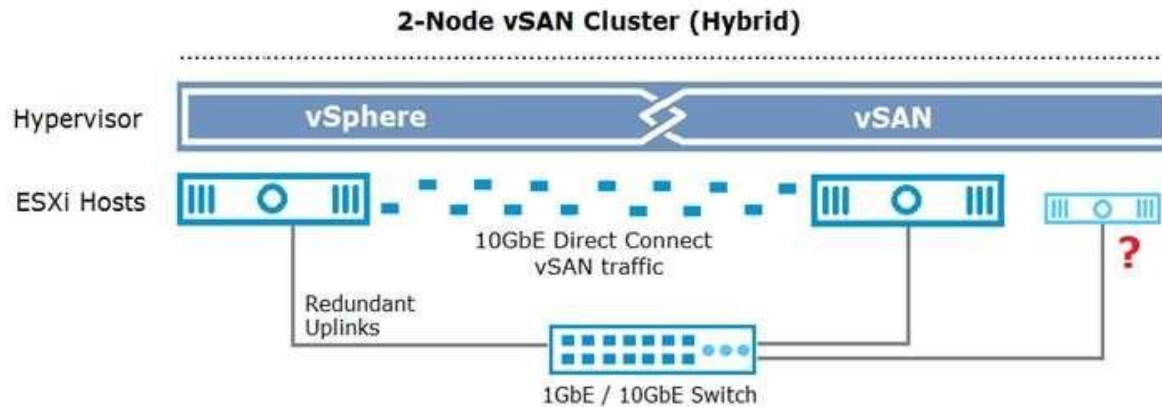
Explanation

Explanation/Reference:

Reference: <https://storagehub.vmware.com/t/vsan-frequently-asked-questions-faq/availability/>

QUESTION 52

Refer to the red question mark in the exhibit.



When designing a 2-node vSAN cluster, which missing configuration requirement prevents a split-brain scenario?

- A. vRealize Operations Manager
- B. vSAN Witness Host
- C. vCenter Server
- D. vRealize Log Insight

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

Reference: <https://storagehub.vmware.com/static/media/9352db50-6eef-45c8-9646-8ccf2175e59b.pdf>



<https://vceplus.com/>

