



Exam Preparation Guide

Last Updated: Wednesday, August 09, 2017

Minimally Qualified Candidate

The Minimally Qualified Candidate (MQC) is a conceptualization of the certification candidate that possesses the minimum knowledge, skills, experience, and competence to just meet our expectations of a credentialed individual.

The MQC achieving the VMware vSAN 2017 Specialist Badge is capable of vSAN cluster design and deployment, storage policy-based management, administration, capacity management, data distribution and component placement, monitoring and alerting, and basic troubleshooting. The MQC understands virtualization concepts and core vSphere features such as virtual distributed switches, vSphere HA, vMotion, vSphere DRS, and NIOC. The MQC also understands underlying networking technologies including switching, routing, VLANs, and multicast. The MQC is fluent in storage concepts and terminology such as IOPS, latency, throughput, SAN, NAS, LUN, volume, fibre channel, iSCSI, VMFS, and NFS. The MQC is familiar with VMware solution domains including vSphere, NSX, vRealize Suite, Horizon Suite, etc.

Exam Sections

Section 1- Storage Fundamentals

Objective 1.1 – Identify storage device characteristics

Objective 1.2 – Identify storage performance factors

Section 2 – vSAN Fundamentals

Objective 2.1 – Provide a high-level description of vSAN

Objective 2.2 – Describe vSAN requirements

Objective 2.3 – Understand how vSAN stores and protects data

Objective 2.4 – Describe vSAN space efficiency features

Section 3 – vSAN Configuration

Objective 3.1 – Identify physical network requirements

Objective 3.2 – Configure vSAN networking

Objective 3.3 – Configure a vSAN cluster

Objective 3.4 – Create and manage disk groups

Objective 3.5 – Validate a vSAN configuration

Section 4 – vSAN Policies and Virtual Machines

Objective 4.1 – Explain how storage policies work

Objective 4.2 – Create and manage storage policies

Objective 4.3 – Explain how storage policies are applied to virtual machines

Objective 4.4 – Check storage policy compliance

Objective 4.5 – Describe vsanSparse snapshots

Section 5 – Managing and Operating vSAN

Objective 5.1 – Configure vSAN encryption

Objective 5.2 – Understand various failure events and how vSAN responds

Objective 5.3 – Describe maintenance mode options

Objective 5.4 – Manage hardware replacement

Objective 5.5 – Describe iSCSI Target service

Section 6 – Stretched Clusters and Two-Node Clusters

Objective 6.1 – Describe a stretched cluster architecture

Objective 6.2 – Create a stretched cluster

Objective 6.3 – Understand data placement in a stretched cluster

Objective 6.4 – Describe the two-node cluster architecture

Section 7 – Monitoring and Troubleshooting vSAN

Objective 7.1 – Understand hardware failure scenarios

Objective 7.2 – Interpret vSAN Health in the vSphere Web Client

Objective 7.3 – Access performance information in the UI and using CLI

Objective 7.4 – Access capacity management information

Section 8 – Interoperability with vSphere Features

Objective 8.1 – Identify vSphere features that work with vSAN

Objective 8.2 – Understand vSAN compatibility with SRM

Objective 8.3 – Describe 3rd-party solution integration with vSAN

Objective 8.4 – Understand vSAN compatibility with Horizon

Section 9 – Designing a vSAN Deployment

Objective 9.1 – Understand vSAN design considerations

Objective 9.2 – Understand vSAN cache tier sizing

Objective 9.3 – Design a vSAN cluster

Objective 9.4 – Identify vSAN design and sizing tools

Sample Exam Questions

Sample Question 1

What are two minimum network bandwidth requirements for vSAN? (Choose two.)

- A. Dedicated 1 Gbps for hybrid configurations.
- B. Dedicated or shared 10 Gbps for all-flash configurations.
- C. Dedicated 10 Gbps for hybrid configurations.
- D. Dedicated or shared 25 Gbps for all-flash configurations.

Sample Question 2

Which statement is true regarding an all-flash vSAN cluster?

- A. The cache tier is allocated 100% for read cache.
- B. The cache tier is allocated 100% for the write buffer.
- C. The cache tier is allocated 70% for read cache and 30% for the write buffer.
- D. The cache tier is NOT required for an all-flash vSAN cluster.

Sample Question 3

Teaming physical network interface cards provides which primary benefit for hosts in a vSAN cluster?

- A. Redundancy for higher availability
- B. Flow control for reduced congestion
- C. Active load balancing for increased performance
- D. Enables the use of multiple VMkernel adapters on the same subnet for increased performance

Sample Question 4

Which two of the listed options are valid cache devices for a vSAN host? (Choose two.)

- A. SATADOM
- B. NVMe Device
- C. SSD Flash Device
- D. RAM Disk

Sample Question 5

The vSAN default storage policy has NOT been modified.

What are two rules contained in this policy? (Choose two.)

- A. Primary level of failures to tolerate = 1
- B. Number of disk stripes per object = 1
- C. Failure tolerance method = RAID-5/6 erasure coding
- D. Deduplication = enabled

Sample Question 6

Given a storage policy that contains the following rules:

- Primary Level Of Failures To Tolerate = 1
- Failure Tolerance Method = RAID 5/6 (Erasure Coding) - Capacity

What is the minimum number of hosts required to achieve compliance with this storage policy?

- A. 6
- B. 5
- C. 4
- D. 3

Sample Question 7

What are two advantages of using the vSAN witness host virtual appliance over a physical host as a vSAN witness in a stretched cluster? (Choose two.)

- A. The vSAN witness host virtual appliance does NOT require a vSphere license.
- B. The vSAN witness host virtual appliance allows you to run more virtual machines on a vSAN stretched cluster than the physical vSAN witness host.
- C. The vSAN witness host virtual appliance is easy to deploy and purpose-built.
- D. The vSAN witness host virtual appliance can also be used to run virtual machines.

Sample Question 8

Which three of the listed methods can be used to monitor vSAN health? (Choose three.)

- A. vSAN Health in the vSphere Web Client
- B. VMware ESXi host client
- C. esxcli vsan health command
- D. esxtop vsan -h command
- E. vCenter Server Managed Object Browser (MOB)

Sample Question 9

Which three features are supported when using Site Recovery Manager (SRM) in a vSAN cluster? (Choose three.)

- A. vSAN iSCSI Target Replication
- B. Storage Policy-Based Management
- C. vSphere Replication
- D. Synchronous Replication
- E. Automated IP address changes

Sample Question 10

Which host aspect should be considered in the cluster to meet the Primary level of failures to tolerate policy requirements?

- A. The number of disk groups in each host
- B. The model of hosts
- C. The number of disks in each host
- D. The number of hosts

Answer Key: 1-A and B; 2-B; 3-A; 4-B and C; 5-A and B; 6-C; 7-A and C; 8-A, B and C; 9-B, C and E; 10-D

Recommended Course

VMware vSAN: Deploy and Manage [V6.6] course

References

<https://storagehub.vmware.com/#!/vmware-vsan/vsan-stretched-cluster-2-node-guide>

<https://storagehub.vmware.com/#!/vmware-vsan/vsan-operations-guide>

<https://storagehub.vmware.com/#!/vmware-vsan/running-the-vsan-witness-appliance-in-vcloud-air>

<https://storagehub.vmware.com/#!/vmware-vsan/what-s-new-in-vmware-vsan-6-6>

<https://storagehub.vmware.com/#!/vmware-vsan/vmware-r-virtual-san-tm-design-and-sizing-guide>

<https://storagehub.vmware.com/#!/vmware-vsan/vsan-multicast-removal>

<https://storagehub.vmware.com/#!/vmware-vsan/vsan-6-6-proof-of-concept-guide>

<https://storagehub.vmware.com/#!/virtual-volumes-5/vsphere-virtual-volumes-technical-overview>

<https://storagehub.vmware.com/#!/vmware-vsan/vmware-r-vsan-tm-network-design>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-1D8956A2-3F46-49C8-9231-38F3A9D09A0F.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-ACC10393-47F6-4C5A-85FC-88051C1806A0.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-08911FD3-2462-4C1C-AE81-0D4DBC8F7990.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-AFF133BC-F4B6-4753-815F-20D3D752D898.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-24F074B0-E04C-440E-A1DD-8047E8615485.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-581D2D5C-A88F-4318-A8B3-5A5F343F1247.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-73493C3C-0DEC-419D-9E36-801B2839A5A5.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-3D2D1382-9DDC-44D4-AF3B-ACA4F1DDBDCC.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-68CDE86F-C5A7-4B3E-9DA8-BD8165D3A9AF.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-ODD0572A-0B7A-43FB-B74D-64ECCC3B4D64.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-1EB40E66-1FBD-48A6-9426-B33F9255B282.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-0F3C4D3F-9B86-4879-9C60-D6A977523112.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-D8240016-0644-46A3-A31C-D9D232CB8961.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-35A4B700-6640-4519-A885-440A1AE8D3BD.html>

<https://docs.vmware.com/en/VMware-vSphere/5.5/com.vmware.vsphere.storage.doc/GUID-C8E919D0-9D80-4AE1-826B-D180632775F3.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-4B738A10-4506-4D70-8339-28D8C8331A15.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-3332D48C-E8F2-4462-BC30-60C9532C624C.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-ED76D553-0AB5-44EC-BEB7-A054C5BAE7A3.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-666D9839-2726-4936-8C0F-94476ECE0606.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-88790522-2FA0-476F-B874-6FE4E8E5B908.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-0D43429F-E2E7-4647-8ECA-8F606E9E910F.html>

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-1D8956A2-3F46-49C8-9231-38F3A9D09A0F.html>

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

<https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.virtualsan.doc/GUID-C228168F-6807-4C2A-9D74-E584CAF49A2A.html>

https://pubs.vmware.com/vsphere65/index.jsp?topic=%2Fcom.vmware.vcli.ref.doc%2Fesxcli_vsan.html

<http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.vsphere.virtualsan.doc/GUID-C8E919D0-9D80-4AE1-826B-D180632775F3.html>

https://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=2148358

<https://www.vmware.com/files/pdf/products/vsan/vmware-vsan-62-space-efficiency-technologies.pdf>

<https://www.vmware.com/files/pdf/techpaper/vmware-virtual-san-stretched-cluster.pdf>

<https://www.vmware.com/files/pdf/products/vsan/vmware-virtual-san-caching-whitepaper.pdf>

<https://blogs.vmware.com/virtualblocks/2015/09/08/vmware-virtual-san-stretched-cluster/>

<https://blogs.vmware.com/virtualblocks/2017/04/11/vsan-6-6-native-data-at-rest-encryption/>

<https://blogs.vmware.com/virtualblocks/2017/01/18/designing-vsan-disk-groups-cache-ratio-revisited/>

<https://blogs.vmware.com/virtualblocks/2017/01/16/understanding-storage-policy-based-management/>

<https://blogs.vmware.com/virtualblocks/2017/02/09/vsan-srm-rpo-rto/>

<https://blogs.vmware.com/virtualblocks/2016/10/18/whats-new-in-virtual-volumes-2-0/>

<http://cormachogan.com/2013/09/10/vsan-part-7-capabilities-and-vm-storage-policies/>

<http://cormachogan.com/2016/02/17/vsan-6-2-part-3-software-checksum/>

<http://cormachogan.com/2013/09/04/vsan-part-4-understanding-objects-and-components/>

<http://www.jeffhunter.info/2016/09/vsan-availability-part02.html>

<https://francisdalyit.com/2016/02/26/virtual-san-6-2-dedupe-and-compression/>

<http://louwrentius.com/understanding-iops-latency-and-storage-performance.html>

<https://vsantco.vmware.com/vsan>

Exam Content Contributors:

Jeff Hunter
Duncan Epping
Francis Daly
Vuong Pham
Palanivenkatesan Murugan
Jase McCarty
Andreas Scherr
Greg Mulholland
Daniel Natale
Tom Twyman

Ken Werneburg
Pete Flecha
Peter Keilty
Brad Garvey
Christian Rauber
GS Khalsa
Pete Koehler
John Nicholson
Chen Wei
Michael Sabol