StarWind Virtual SAN®

System Requirements

MARCH 2018

TECHNICAL PAPER

Trademarks

"StarWind", "StarWind Software" and the StarWind and the StarWind Software logos are registered trademarks of StarWind Software. "StarWind LSFS" is a trademark of StarWind Software which may be registered in some jurisdictions. All other trademarks are owned by their respective owners.

Changes

The material in this document is for information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, StarWind Software assumes no liability resulting from errors or omissions in this document, or from the use of the information contained herein. StarWind Software reserves the right to make changes in the product design without reservation and without notification to its users.

Technical Support and Services

If you have questions about installing or using this software, check this and other documents first - you will find answers to most of your questions on the Technical Papers webpage or in StarWind Forum. If you need further assistance, please contact us.

About StarWind

StarWind is a pioneer in virtualization and a company that participated in the development of this technology from its earliest days. Now the company is among the leading vendors of software and hardware hyper-converged solutions. The company's core product is the years-proven StarWind Virtual SAN, which allows SMB and ROBO to benefit from cost-efficient hyperconverged IT infrastructure. Having earned a reputation of reliability, StarWind created a hardware product line and is actively tapping into hyperconverged and storage appliances market. In 2016, Gartner named StarWind "Cool Vendor for Compute Platforms" following the success and popularity of StarWind HyperConverged Appliance. StarWind partners with world-known companies: Microsoft, VMware, Veeam, Intel, Dell, Mellanox, Citrix, Western Digital, etc.

Copyright ©2009-2018 StarWind Software Inc.

Contents

Introduction

This document describes system requirements for StarWind Virtual SAN, including the full information about the recommended CPU, RAM, storage, network bandwidth, and operating systems. The document also covers the system requirements for deploying StarWind VSAN as a virtual machine. Additionally, the requirements for the Asynchronous replication are specified.

The technical paper is intended for virtualization administrators and StarWind users who are planning to deploy StarWind VSAN and need technical details to proceed.

A full set of up-to-date technical documentation can always be found here, or by pressing the **Help** button in the StarWind Management Console.

For any technical inquiries please visit our online community, Frequently Asked Questions page, or use the support form to contact our technical support department.

CPU

CPU: Intel Xeon E5620 (or higher) or equivalent AMD Opteron

With 75% of server workloads being virtualized, virtualization is just getting started. VDI and SMB clouds have just started to emerge and will grow rapidly in the next few years. As IT is moving forward at an ever-increasing pace, datacenters are becoming hyperconverged.
The minimum recommended CPU is Intel Xeon E5620 or equivalent. Intel Xeon X5660 or equivalent can be used in order to maximize the performance.

RAM

RAM: 4GB is the minimum.
RAM amount that should be installed on a server that is running StarWind Virtual SAN. In case of implementing StarWind High Speed caching, an appropriate RAM amount should be installed additionally. The cache-dedicated RAM amount should be equal or higher than the one reserved for iSCSI targets caching.

In-line deduplication with LSFS requires 7.6 GB of RAM per 1 TB of deduplicated storage.

IMPORTANT NOTICE: Always reserve at least 4 GB RAM for Windows internal processes and the StarWind Virtual SAN engine.

Storage

- Hardware RAID controller is highly recommended
- StarWind Virtual SAN supports Microsoft Storage Spaces
- Software RAID implementations are NOT supported

Depending on the storage requirements, the most appropriate RAID configuration can be selected. StarWind recommendations for the proper HA storage design are:

- RAID 10 for SAS or SATA hard drives
- RAID 1, 5, 6, 10 for SAS or SATA SSDs

RAID 5, 6, 50, 60 can be considered for a backup/VTL environment with mostly sequential workloads, where the best write performance is not a critical requirement and the main goal is to achieve the maximum storage efficiency. In order to receive an additional information regarding the particular storage design, please contact StarWind Support.

The minimum requirement for StarWind installation and logging is 3 GB of disk space. The StarWind virtual disks must reside on the separate partition from StarWind installation.

Networks

Minimum of 2 x 1GbE physical NICs

The minimum supported bandwidth is 1 GbE. In case of an intensive workload, the scaling to the 10 GbE or 40 GbE infrastructure should be considered. In order to maximize the SAN environment performance, it is highly recommended to use 9K Jumbo frame capable network equipment.

StarWind Synchronization network has a prerequisite of both NIC (preferred) and switch (if used) fault tolerance measures. The use of STP (Shielded twisted pair) CAT6 (or higher) cable is required for the Synchronization Network for both crossover and server-switch connections.

Network latency requirements

Maximum Synchronization network latency should not exceed 5 ms.

Network latency higher than 5 ms may lead to the HA performance degradation.

It is recommended to consult on long-distance cross-datacenter deployments with StarWind Technical Engineers per case basis.

Supported Operating Systems

· Microsoft Windows Server 2008 R2 (partial support)
· Microsoft Windows Server 2012
· Microsoft Windows Server 2012 R2
· Microsoft Windows Server 2016

Supported Microsoft Windows Server GUI-less editions

- Windows Server Core 2008 R2 (partial support)
- Windows Server Core 2012
- Windows Server Core 2012 R2
- Hyper-V Server 2008 R2 (partial support)
- Hyper-V Server 2012
- Hyper-V Server 2012 R2
- Hyper-V Server 2016

IMPORTANT NOTICE: The use of Windows Server Core or Microsoft Hyper-V Server as a base OS is incompatible with StarWind Management Console local installation. In this case, the StarWind Management console should be installed on any other computer. Please note that for remote management, port 3261 has to be open in both machines' firewalls.

Microsoft Windows Desktop editions compatible with StarWind Management Console

- Windows 7
- Windows 8
- Windows 8.1
- Windows 10

System requirements for deploying StarWind as a virtual machine:

CPU. 4 virtual processors with 2 GHz reserved is the minimum requirement to ensure the proper functioning of VSA.

Network Settings. 2 NIC ports dedicated as separate virtual switches is the minimum requirement for StarWind synchronization and iSCSI traffic. The recommended minimal bandwidth is 1 GbE. In case of an intensive workload, the scaling to a 10 GbE or higher should be considered.

Infrastructure. Supported vSphere version: 5.x and later.

For specific recommendations, please contact StarWind Support.

Asynchronous replication

RAM. For storage workload handling, the primary storage system must allocate 128 MB of RAM additionally. The disaster recovery location must correspond the LSFS device requirements specified here: https://www.starwindsoftware.com/resource-library/lsfs-container-technical-description

IMPORTANT NOTICE: The requirement is applied only to StarWind-related RAM expenses. The memory for OS, hypervisor, and other applications should be sized separately.

Bandwidth. The minimal required throughput is 10 Mbps. It is recommended to use the data link that is physically capable of transmitting the replicated amount of data within the desired backup window time.

Physical Storage Considerations. The performance of the drive storing the primary node replication journal must be higher or equal to the maximum write throughput of the production storage array. The measurement should be held under "8MB block size 100% sequential write" pattern. The reserved free space of the journal disk must exceed the amount of data written to the production storage array within the time frame between the snapshots, plus additional 25%. The disaster recovery location must correspond the LSFS device requirements specified here: https://www.starwindsoftware.com/resource-library/lsfs-container-technical-description

Contacts

US Headquarters	EMEA and APAC
📞 1-617-449-77 17 🖨 1-617-507-58 45 💬 1-866-790-26 46	📞 +44 203 769 18 57 (UK) 📞 +34 629 03 07 17 (Spain and Portugal)

Customer Support Portal:	https://www.starwind.com/support
Support Forum:	https://www.starwind.com/forums
Sales:	sales@starwind.com
General Information:	info@starwind.com

StarWind Software, Inc. 35 Village Rd., Suite 100, Middleton, MA 01949 USA www.starwind.com