



## QSAN Storage Manager

# XEVO Data Management System

## Flash-Based Storage Management System

### Overview

XEVO, a flash-based storage management system designed by QSAN, XEVO's core technology provides the excellence, flexibility, and intelligence needed to simplify all content for the flash-based storage system. Using XEVO, the system can be deployed in five minutes and provide an intuitive user interface for real-time resource monitoring and management tools.

### Key Benefits

#### Care

QSLife, QSAN's native SSD technology, offers users a specified technology to analyze the SSD activity and uses a unique algorithm to help you keep an eye on health and the other information of your SSD drives.

#### Trust

Under QSAN XEVO analysis system's support, it can generate one-year performance and capacity analysis for you. It allows IT generalists who have our solution to analyze the storage usage faster and easier.

#### Fluency

XEVO simplifies itself – freeing you from the complicated process of deploying your storage. Power it on and click your finger just some steps and enjoy the convenience and focus on your business without paying much attention to setting up storage.

### Evolution

#### Infinity and Beyond

XEVO's features set the foundation for next-generation storage, from enterprise data services for all workloads to proven XEVO's availability and optimization. The spirit of XEVO's design is to simplify the operation process so that you have more time to focus on your business and leave the complexity to us.

- Monitor & Analyze Storage
- Analysis the Status of Business Usage
- More Workload Balancing

### Agile

#### Always Fast and Simple

In the past, we have to operate the storage system several times to establish lots of storage environments. With XEVO, you can save your time at building storage environments by utilizing automatic functions enabling you to deploy multiple volumes in just one step.

- Easy Deployment in 5 Minutes
- Auto Load Balance
- Improve Drive Utilization
- Grouping Batch Operation
- Intuitive UI Operations

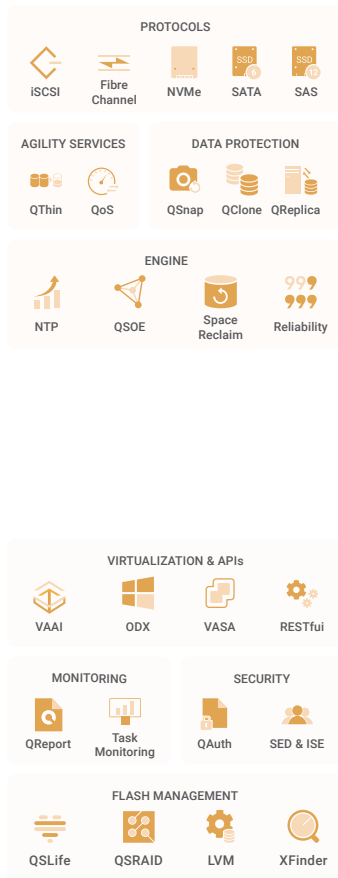
### Responsibility

#### Safeguard Your Data

XEVO provides a comprehensive solution from operation to backup to effectively minimize the data risk of modern enterprises.

- Prevents SSDs Failure at the Same Time
- Find out the Killer that Affects System Performance at a Glance
- Authorizations of Users Responsibility
- Protect Enterprise Digital Assets
- Restore Accidentally Deleted Data





## Software Feature

### Powering Storage Functionality

XEVO implements rich host applications and delivers enterprise data services that are founded upon QSAN core engines. These are the technologies that care about your data and drive high performance which QSAN is proud of.

- QSOE (QSAN Storage Optimization Engine)
- QoS (Quality of Service)
- QSLife (Intelligent SSD Analyzer)
- QReport (Analyze the Status of Business Usage)
- QSRAID (SSD Endurance Optimization)
- QAuth (Authorizations of User's responsibility)
- QSnap (Snapshot and Snapshot Recycle Bin)
- QClone (Local Clone)
- QReplica (Remote Replication)

### High-Speed Data Experience

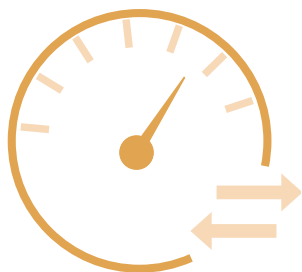
XEVO is designed for high-speed data transmission. The unique algorithm makes XEVO compatible with SATA/SAS and NVMe protocols and achieves  $\mu$ s-level high-speed performance, bringing the most immediate data response to every critical mission.

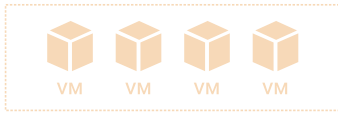
- QSOE (QSAN Storage Optimization Engine) - XEVO optimizes communication-centric processes to reduce multi-protocol overhead, increase session scalability, increase total I/O throughput, IOPS, and achieve low latency performance.
- High-Speed Connectivity - XEVO implements industry-leading Ethernet and FC high-speed network connections. The data environment can be easily and freely configured according to requirements.

### Brand New Data Experience

With the exponential growth of data, easy management has become the foundation of modern IT. XEVO simplifies the complex IT process from construction to maintenance. Make enterprises focus on value creation instead of IT management.

- Grouping Batch Operation - Groups the required content (for example, volume, host) to save tones of time to manage storage and prevent accidental damages caused by human negligence.
- QSLife (Intelligent SSD Analyzer) – QSAN's native SSD technology offers users a specified technology to analyze the SSD activity and uses a unique algorithm to help to keep an eye on the health and other information of drives.
- QReport (Analyze the Status of Business Usage) - Generates performance and capacity analysis within 1 year, simplifying the work of IT managers.
- QoS (Quality of Service) - To provide effective services to every mission, XEVO's QoS ensures that the service requirements of the job are met and balances the workload of the system.





### Virtualization Ready

XEVO is verified with VMware<sup>®</sup>, Citrix<sup>®</sup>, and Microsoft<sup>®</sup> Hyper-V<sup>™</sup> certified. No matter which virtualization environment you've adopted, XEVO is a convenient and fast storage system that allows you to deploy a low-latency and high-performance virtualization environment to expand your business. To protect VM and data, XEVO also supports 3rdparty virtual machine backup software to ensure that your VM and data will never be lost.

### High Availability with No Single Point-of-Failure

XEVO's automatic failover/failback mechanism and cache mirroring through NTB (Non-Transparent Bridge) bus to achieve Active-Active HA functionality allows the system to withstand multiple component failures and achieve 99.9999% availability.

- Dual-Active (Active/Active) – The dual-active design provides the highest-level availability and supports non-disruptive firmware upgrades. Also, it allows double the host bandwidth and cache-hit ratio utilizing both controllers also means there are no idle resources within the system.
- Automatic Failover/Failback- When one controller fails, the other controller can seamlessly take over all the tasks of the failed controller.
- Online Firmware Update - Always keep the latest version of Firmware with zero system downtime.
- Cache-to-Flash Memory Protection - In the event of power loss, it will lose the I/O cache data stored in volatile memory. The Cache-to-Flash memory protection function will safely transfer the memory cache data to a non-volatile flash device for permanent preservation.

### Comprehensive Data Security

XEVO provides the most comprehensive features to guarantee your data security and protect your businesses from data theft, unauthorized disclosure, malicious network attack, and accidental corruption.

- QSRAID – Supports 15 different RAID levels to provide storage redundancy for additional protection. The global hot spare function enhances RAID protection by automatically replacing the failed disks and starting the rebuild process without the user intervention.
- QReplica(Remote Replication) - QReplica has unlimited bandwidth, traffic shaping, and multiple connections per replication task powerful capabilities. It's the most efficient way to perform remote data backup.
- Writable Snapshot - QSnap allows direct access to the snapshot content with reading/writing permissions. It will not consume the free capacity of the storage pool and not affect the content of the target volume.
- SED (Self-Encrypting Drive) Support - With the technology, even if the physical drive is stolen or misplaced, the data on it remains protected against data breach by generating the authentication key (AK) to prevent unauthorized access.
- QAuth (Authorizations of Users Responsibility) - Grants different users the required permissions through separate account access control rights provided by XEVO QAuth 1.0.

## Advanced Always On Technology

Operating System	64bit embedded Linux
Storage Management	Flexible storage pool ownership / Global hot spares / Online disk roaming Write-through and write-back cache policy / Background I/O priority setting Instant RAID volume availability / Fast RAID rebuild Online storage pool expansion / Online volume extension / Online volume migration <sup>1</sup> Multiple volume creation / Auto volume rebuilding / Instant volume restoration / Online RAID level migration Disk drive health check and S.M.A.R.T. attributes / SSD wear lifetime indicator / Disk drive firmware batch update QSRaid for SSD endurance optimization / Storage pool parity check and media scan for disk scrubbing QSLife to monitor and analyze the activity of SSDs Video editing mode for enhanced performance Volume QoS (Quality of Service)
iSCSI Host Connectivity	Proven QSOE 2.0 optimization engine / CHAP & mutual CHAP authentication iSCSI-3 PR (Persistent Reservation for I/O fencing) / iSNS / VLAN (Virtual LAN) / Jumbo frame (9,000 bytes) support
Fibre Channel Host Connectivity	Proven QSOE 2.0 optimization engine / FCP-2 & FCP-3 support / Auto detect link speed and topology Topology supports point-to-point <sup>2</sup> and loop
High Availability	Dual-Active (Active/Active) controllers Cache mirroring through NTB bus ALUA support Management port seamless failover Multipath I/O and load balancing support (MPIO, MC/S, Trunking, and LACP) Firmware update with zero system downtime Cache-to-Flash memory protection
Security	Secured Web (HTTPS), SSH (Secure Shell) / iSCSI Force Field to protect from mutant network attack iSCSI CHAP & mutual CHAP authentication / ISE & SED drive support
Storage Efficiency	Thin Provisioning (QThin) with space reclamation
Networking	DHCP / Static IP / NTP / Trunking / LACP / VLAN / Jumbo frame (up to 9,000 bytes)
Advanced Data Protection	<b>Snapshot (QSnap), block-level, differential backup</b> Writeable snapshot support Manual or schedule tasks Snapshot recycle bin <b>Remote Replication (QReplica)</b> Auto remote replication without doing configurations 1 Step Local-to-Remote <b>Synchronous<sup>3</sup> (will be available in Q3, 2021). Asynchronous, block-level, differential backup based on snapshot technology</b> Traffic shaping for dynamic bandwidth controller Manual or schedule tasks Auto rollback to previous version if current replication fails <b>Volume clone for local replication</b> Auto local clone without doing configurations <b>Configurable N-way mirroring</b> <b>Integration with Windows VSS (Volume Shadow Copy Service)</b> <b>Instant volume restoration</b> <b>Support USB UPS and network UPS with SNMP management</b>
Virtualization Certification	Server Virtualization & Clustering Latest VMware vSphere certification / VMware VAAI for iSCSI & FC Windows Server Hyper-V certification Microsoft ODX Latest Citrix XenServer certification
Easy Management	USB LCM <sup>3</sup> / Serial console support / Online firmware update Intuitive Web management UI, secured web (HTTPS), SSH (Secured Shell), LED indicators S.E.S. support / S.M.A.R.T. support / Wake-on-LAN Grouping batch operation for host and protection groups / QReport generates performance and capacity analytics XFinder utility support to easy find storage system / RESTful API support QAuth for authorizations of user's responsibility
Green & Energy Efficiency	Wake-on-LAN to turn on or wake up the system only when necessary / Auto disk spin-down
Host Operating Systems Support	Windows Server SLES ; RHEL ; CentOS Solaris ; FreeBSD Mac OS X
Multi-Browser Support	Internet Explorer / Safari / Firefox / Google Chrome
Utility	Xfinder / XInsight
Note	1.The feature is based on RAID level migration of disk groups on the fly in thick provisioning pools. 2.16/32Gb Fibre Channel only supports Point-to-Point topology. 3.The function is optional and is not included in the default package.