QSAN Storage Manager

XEVO 3

Enterprise Data Management for Block Storage

Key Benefits

Efficiency

- Support RDMA, NVMeoF, and QoS to accelerate mission critical applications
- Optimize data retrieval and transfer speeds, enhancing overall system performance and reducing latency

Trust

- Under the support of QSAN XEVO's analysis system, a one-year performance and capacity analysis can be generated for you
- Streamline the backup and recovery process with a variety of built-in backup applications to restore operations faster after a data loss event

Fluency

- Enable cross QSAN platform replication, ensuring secure and easy backup storage
- Support RESTful API, SNMP, and emailing for external management or use QSAN XInsight, smarter data management with simplified platform and intelligent engine

Overview

XEVO is a flash-based storage management system that provides exceptional performance, flexibility, and intelligence. It simplifies the management of hybrid storage systems, allowing deployment in just five minutes. With an intuitive user interface, XEVO enables real-time resource monitoring and management.

Swift Data Experience

XEVO established the foundation for the next generation of all flash array and hybrid storage, supporting all enterprise data service workloads with advanced availability and optimization. Designed to simplify operations, XEVO allows users to focus more on business matters while handling the complexities of storage management.

- Monitor and analyze disk drives
- Mature software accelerate feature
- Integrated reporting at a glance

Shielding Data from Any Threat

Multiple backup solutions help businesses protect their data more intensively. Not to mention supporting synchronous replication can ensure data consistency between the replication source and target. It ensures every write I/O requested from the applications on the host will be completed after the host obtains the confirmation between the source and the target. Make sure your digital assets are safe when disaster happens.

- Prevents drives failure at the same time
- Find out the killer that affects system performance at a glance
- Authorizations of users' responsibility
- Restore accidentally deleted data

Agile and Always Simple

Imagine that you must establish numerous storage environments all at a time. In the past, storage systems had to process operations several times back and forth to meet our goals. With XEVO, you can save your time building storage environments by utilizing automatic functions which enable the deployment of multiple volumes in just one step.

- Easy deployment in 5 minutes
- Auto load balance
- Grouping batch operation

QSAN

Software Feature

Powering Storage Functionality

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

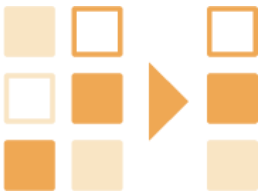
- **QoS** (Quality of Service)
- **QSLife** (Intelligent Disk Drive Analyzer)
- **QReport** (Analyze Business Usage)
- **QAuth** (Authorizations of User Responsibility)
- **QSnap** (Snapshot and Snapshot Recycle Bin)
- **QClone** (Local Clone)
- **QReplica** (Remote Replication)
- **QCache** (SSD Cache)*
- **QTiering** (Auto Tiering)*

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 µs-level high-speed performance, bringing the most immediate data response to every critical mission.

- **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.

- **QSLife** (Intelligent Disk Drive Analyzer) - QSAN's native SSD technology offers users a specified technology to analyze the SSD activity and uses a unique algorithm to help the user to keep an eye on the health of drives.
- **QReport** (Analyze Business Usage) - Generates performance, capacity analytics, SSD cache, and auto tiering statistics within one year, simplifying the work of IT managers. Advanced QReport collects all disk drive health and analysis information, compiles them into emails and sends regular emails to administrator to determine how to deal with system exceptions, thereby avoiding the risk of data corruption.
- **Grouping Batch Operation** - Group the required contents (e.g. volumes or hosts) to save a lot of time managing storage and prevent accidental damage caused by human negligence.
- **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.

* The feature is only available for hybrid storage models.

Optimized Data Efficiency

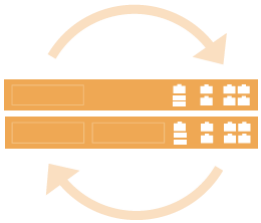
Eliminate concerns about rising TCO (Total Cost of Ownership) as your business expands. XEVO, equipped with advanced **deduplication and compression**** technologies, significantly reduces storage requirements and costs. By removing redundant data and compressing files, XEVO enhances storage efficiency, enabling you to manage larger data volumes without proportional cost increases. Stop adding expense and complexity as data grows and leverage XEVO's powerful data reduction function for a streamlined, budget-friendly strategy.

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. It also allows double the host bandwidth and cache-hit ratio by utilizing both controllers, meaning 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 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.
- **Mirrored Firmware Protection** - The mirrored firmware architecture ensures that when one firmware carrier fails, the other firmware carrier will automatically take over the task. Ensure each service continues to operate.

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 attacks, 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.
- **QSnap** (Writable Snapshot) - QSnap allows direct access to the snapshot content with reading / writing permissions. It will not affect the content of the target volume and is suitable for laboratory testing and teaching practice environments.
- **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 AK (Authentication Key) to prevent unauthorized access.
- **QAuth** (Authorizations of Users Responsibility) - Grants different users the appropriate permission through access right control with QAuth feature.

** The feature is only available in all-SSD pool.

Software Specification

Operating System	64-bit embedded Linux
Storage Management	RAID level 0, 1 ,0+1, 5, 6, 10, 50, 60, and N-way mirror / RAID EE level 5EE, 6EE, 50EE, and 60EE / QDP (Dynamic Pool) 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[1] 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 / QSLIfe to monitor and analyze the activity of disk drives Multiple volume creation / Volume QoS (Quality of Service) Storage pool parity check and media scan for disk scrubbing QScale[3] (scale-out) / JBOF expansion / JBOF mode
iSCSI Host Connectivity	CHAP & mutual CHAP authentication / iSCSI-3 PR (Persistent Reservation for I/O fencing) / NVMe-oF iSNS / VLAN (Virtual LAN) / Jumbo frame (9,000 bytes) support
Fibre Channel Host Connectivity	FCP-2 & FCP-3 support / Auto detect link speed and topology / NVMe-oF Topology supports point-to-point[2] and loop
High Availability[5]	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	HTTPS (secure web) / 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 with space reclamation / QCompact (deduplication and compression)[3 4] SSD cache / Auto tiering / RDMA / Performance mode
Networking	DHCP / Static IP / NTP / Trunking / LACP / VLAN / Jumbo frame (up to 9,000 bytes)
Advanced Data Protection	Snapshot, block-level, differential backup Writeable snapshot support Manual or schedule tasks Snapshot recycle bin Remote Replication Asynchronous, block-level, differential backup based on snapshot technology Synchronous[3], block-level, always synchronize based on the recorded fracture log Traffic shaping for dynamic bandwidth controller Manual or schedule tasks Volume clone for local replication Local to remote configuration Instant volume restoration QMetro[3] (synchronous data replication between two storages) Cross-system replication (replicate data between block storage and unified storage) Support USB UPS and network UPS with SNMP management
Virtualization Certification	Server virtualization & clustering Latest VMware vSphere certification / VMware VAAI for iSCSI & FC / VMware vVols 2.0 / VASA support Microsoft Windows Server Hyper-V certification / Microsoft ODX Support CSI (Container Storage Interface) CSI volume (NFS / iSCSI / FCP)
Easy Management	USB LCM[3] / Serial console support / Online firmware update Intuitive Web management UI, LED indicators S.E.S. support / S.M.A.R.T. support Grouping batch operation for host and protection groups QReport generates performance, capacity analytics, SSD cache and auto tiering statistics Advanced QReport collects all disk drive health and analysis information and sends periodic emails XFinder utility support to easy find storage system / RESTful API support QAuth for authorizations of user's responsibility
Log	Event log with filter / Download the entire event log or between a certain time period
Notification	Email / SNMP / syslog / RESTful API
Green & Energy Efficiency	Wake-on-LAN and Wake-on-SAS to turn on or wake up the system only when necessary / Auto disk spin-down
Multi-Browser Support	Google Chrome / Microsoft Edge / Apple Safari / Mozilla Firefox
Host Operating System Support	Windows Server SLES / RHEL / CentOS Solaris / FreeBSD Mac OS X
Utility	XFinder / XInsight
Notes	1. The feature is based on RAID level migration of disk groups on the fly in thick provisioning pools. 2. 16 / 32 / 64 Gb Fibre Channel only supports Point-to-Point topology. 3. The feature is optional and not included in the default package 4. This feature is only available in all-SSD pool. 5. The features are supported in dual controller models.

Software Specification

Pool	
Maximum number of disk groups in a pool	32
Maximum number of disk drives in a pool	256
Maximum number of pools per system	128
Maximum disk capacity support	Largest disk capacity on the market
Maximum capacity of a thin provisioning or an auto tiering pool	1 PB
Maximum capacity of total thin provisioning or auto tiering pools	8 PB
Volume	
Maximum number of volumes in a pool	1,024
Maximum number of volumes per system	8,192
Maximum volume capacity of a thin provisioning pool	1 PB
Host	
Maximum number of iSCSI hosts (dual controller / single controller)	2,048 / 1,024
Maximum number of Fibre Channel hosts (dual controller / single controller)	512 / 256
Maximum number of LUNs per system	8,192
Snapshot	
Maximum number of snapshots per volume	256
Maximum number of snapshots per system	2,097,152 (8,192 * 256)

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