



GreenBytes® GB-X Series

High-Performance SSD Accelerated Inline Deduplicating SAN and NAS Appliances

POWERFUL AND EFFICIENT STORAGE IN A 1U, 2U OR 4U FORM FACTOR

Designed for high-performance general purpose storage, virtual environments, long-term "online" archive and data protection applications



Overview

GreenBytes' next-generation Hybrid Storage Architecture (HSA) combines high-performance solid state storage technology, energy efficient 2.5" SATA drives, high-performance inline data deduplication, simultaneous SAN and NAS connectivity, power efficiency and 10 GbE connectivity to create a high-performance, highly flexible architecture that is also extremely power-efficient and affordably priced. GreenBytes' GB-X Series of turnkey appliances have been purpose-built to bring the efficiencies of deduplication beyond backup and data protection and into the primary storage market.

Leveraging high throughput and tunable IO performance, in conjunction with the rich features of the GreenBytes file system (GBFS), the GB-X Series is ideal for the real-time performance challenges of primary storage and boasts the data ingest, restore, and remote replication rates required for effective backup and data protection, all at a price point that makes the efficiencies of inline deduplication accessible to all companies, regardless of size.

Features

Ideal Applications

- **PRIMARY STORAGE CONSOLIDATION**
Simplify your storage environment by consolidating your user and business data on a GB-X Series line speed deduplicating appliance. GreenBytes allows for maximum storage infrastructure flexibility by allowing simultaneous SAN and NAS connectivity (CIFS, NFS, iSCSI). GreenBytes' superlative "out of the box" read/write performance is accelerated with high transaction rate capable SSD, eliminating the need for expensive spindle count scale out.
- **BACKUP and DATA PROTECTION**
GB-X appliances and their best-in-class data ingest and information restore rates, combined with innovative deduplication and compression technologies, make them a perfect choice for backup and data protection environments. GreenBytes' real-time inline deduplication removes the inefficiencies of technologies with limited scaling capacity induced by requiring "landing space" for backup data. And since GreenBytes' advanced solution requires no post process data manipulation, remote replication of backup data can begin immediately, providing for the highest levels of data protection.
- **VIRTUAL SERVER/DESKTOP**
GB-X appliances tame the storage and performance challenges of the proliferation of virtual server and desktop OS images as businesses increasingly adopt server virtualization. In VDI environments, SSD accelerated architecture handles even the most challenging of "IO Storms" while eliminating the need to grossly overprovision storage - characteristic of the legacy "spindle count" performance acceleration architectures. The GB-X appliance delivers deduplication efficiencies of 50-60:1 in VDI content and its flexibility of connection via iSCSI, CIFS and NFS all add up to a storage architecture "tailor made" for virtualized desktop environments.
- **ONLINE ARCHIVING**
Keep more information online and at your fingertips. The GB-X appliance delivers a "perfect storm" of technologies allowing for the lowest cost online archive available in the marketplace. GreenBytes' inline deduplication, compression, and MAID disk power management, combined with high storage density and power-stingy hardware, delivers unmatched disk, power and data center rack space efficiencies.

Benefits



Optimize.

Optimize and consolidate storage with GB-X's real-time inline deduplication and compression operating system. Free up valuable data center space and associated energy cost with efficient storage.



Simplify.

Storage administrators enjoy the benefits of the GreenBytes Storage Manager that leverages the universally known interface of the Microsoft Management Console (MMC). Storage Manager makes initial configuration, monitoring and expansion activities common in most business environments a snap.



Save.

Save money on the acquisition, support and features of deduplicated storage with GB-X Series appliances. All GreenBytes software is included in the price of our appliances, thus avoiding all of the cost and annoyance of traditional storage software licensing.

Product Feature Overview

- REAL-TIME, BLOCK LEVEL DEDUPLICATION** GB-X appliances include deduplication built into the operating system – creating a true single instance storage appliance capable of on-the-fly deduplication of data – with storage performance and scalability many times that of competing deduplication appliances.
- TRUE STORAGE VIRTUALIZATION** GB-X appliances scale seamlessly on the fly, handling from 4 TB (GB-1000) to 108 TB (GB-4000) of raw data (before deduplication). GreenBytes’ modular scaling architecture allows true demand-based provisioning. GreenBytes expansion shelves can be added at any time to dynamically grow the storage. Further, the modular scaling approach allows for the utilization of the latest and greatest densities, resulting in an even more cost effective scaling profile.
- SSD-ENABLED READ ACCELERATION** GreenBytes’ hybrid SSD/magnetic drive architecture is a revolutionary concept in storage, where storage administrators can provision storage for diverse applications from primary to backup and archive within the same storage chassis, and same management interface. SSD technology accelerates transactional processing by providing low latency indexing mechanisms for block and file storage. Additionally, SSD is interchangeable with conventional magnetic drives in the low-profile 2.5” drive bays found in GreenBytes storage systems. By replacing magnetic drives with SSDs, storage volumes can be created with application-specific performance requirements - independent of the number of spinning disks in the array.
- MANAGEMENT 101** GB-X storage administration is end-to-end in function. We created our administration tool suite to accommodate the entire set of data management tasks with a single Microsoft Management Console (MMC) plug-in. With the toolset, initial configuration of a GB-X system for any particular user environment is as easy as setting up a home wireless router. Snapshot, replication, and easy cross platform (CIFS/NFS) file sharing administration tasks are easily administered with the tool. Graphical performance monitoring helps administrators tune GreenBytes systems for optimal performance for their particular environment. Customers will realize reduced total cost of ownership with significantly less administrative and operational oversight.
- UBIQUITOUS CONNECTIVITY** Use your Windows Active Directory (AD) to auto-provision all of your user storage with our built-in CIFS server, eliminating the need for Samba middleware. Simultaneously provide NFS shares as well as provision iSCSI target LUNs for your SAN storage needs. GB-X appliances are also optimized for use with the Symantec OpenStorage (OST) interface, enhancing deduplication performance with Symantec OST enabled backup applications. Deduplication occurs across the entire storage pool – regardless of the connectivity method.

GB-X Series:	GB-1000	GB-2000	GB-4000
Raw HDD Capacity (Head)	4 TB	12 TB	24 TB
CPU	1 x Quad Core CPU	2 x Quad Core CPU	2 x Quad Core CPU
RAM	12 GB RAM	24 GB RAM	48 GB RAM
OS Drive	32 GB SSD OS N/A	32 GB SSD OS	32 GB SSD OS
Log Drive	N/A	1 x 25 GB SSD	2 x 25 GB SSD
Cache Drives	2 x 25 GB SSD (Mirrored)	2 x 25 GB SSD (Mirrored)	4 x 25 GB SSD (Mirrored)
HDD	8 x 500 GB SATA	24 x 500 GB SATA	48 x 500 GB SATA
Expansion Chassis	N/A	3 x 25 GB SSD D-Cache (Mirrored) 21 x HDD	6 x 25 GB SSD D-Cache (Mirrored) 42 x HDD
Max	4 TB	33 TB	108 TB
Data Deduplication	High speed inline, variable block, SSD performance optimized deduplication	High speed inline, variable block, SSD performance optimized deduplication	High speed inline, variable block, SSD performance optimized deduplication
Connectivity (Std)	2 x 1 GbE	4 x 1 GbE	4 x 1 GbE & 2 x 10 GbE (Copper)
Connectivity (Opt)	N/A	2 x 10 GbE (Copper) 2 x 10 GbE (Optical) 2 x 1 GbE 4 x 1 GbE	2 x 10 GbE (Copper) 2 x 10 GbE (Optical) 2 x 1 GbE 4 x 1 GbE
Service Port	1 x 1 GbE	1 x 1 GbE	1 x 1 GbE
Dimensions	1.75” H (1U) x 27” D x 19” W	3.5” H (2U) x 27” D x 19” W	7.0” H (4U) x 27” D x 19” W
Protocol Support	NFS, CIFS, iSCSI, OST	NFS, CIFS, iSCSI, OST	NFS, CIFS, iSCSI, OST
Replication	N to N	N to N	N to N
Filesystem	GBFS (128 bit)	GBFS (128 bit)	GBFS (128 bit)
Snapshot	Unlimited, 1 min intervals	Unlimited, 1 min intervals	Unlimited, 1 min intervals
Messaging	Email	Email	Email
Energy Efficiency	Low power 2.5” drives and MAID reduced power functionality	Low power 2.5” drives and MAID reduced power functionality	Low power 2.5” drives and MAID reduced power functionality
RAID Levels	0, 1, Z (Single Parity), Z2 (Double Parity), Z3 (Triple Parity)	0, 1, Z (Single Parity), Z2 (Double Parity), Z3 (Triple Parity)	0, 1, Z (Single Parity), Z2 (Double Parity), Z3 (Triple Parity)
Hot Spare HDD	Available	Available	Available

GreenBytes File System (GBFS) Features

- Real-time block level deduplication
- Wirespeed compression
- On-the-fly seamless storage expansion and provisioning
- Thin Provisioning
- Asynchronous remote replication
- Unlimited Snapshots
- Multi Connection Protocol support (iSCSI, CIFS, NFS, OST)
- Integration with Citrix StorageLink™ for Hyper-V
- VMware via iSCSI and NFS
- Microsoft VSS integration
- Graphical replication manager
- Graphical network and IO monitoring features
- MAID intelligent disk power technology
- E-Mail/Phone Home capability for proactive maintenance

GreenBytes is backed by a strong warranty and a world class 7x24x365 customer support network



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