



GB-4000

GB-2000

## PRODUCT FACT SHEET

### Product Description

GreenBytes® has developed the GB-X Series of high-performance inline deduplicating storage appliances that incorporate energy-efficient technologies and the highest levels of scalability in an easy-to-use, cost-effective package, designed to bring the benefits of data deduplication to the broader storage market.

The current generation of deduplication technology has been focused primarily on the data backup and archiving market, due to feature and performance limitations. GreenBytes' technology is different because it is the first to incorporate high-performance inline deduplication into an enterprise-scale file system. The GreenBytes file system, GBFS, is equally capable of ingesting data backup streams as well as acting as primary storage in a NAS and/or SAN mode.

GreenBytes' proprietary technology has the ability to scale within a single namespace to petabyte-size storage architectures – without sacrificing inline storage performance. GreenBytes' ground-breaking new GB-2000 and GB-4000 storage appliances, the first GB-X Series storage appliances available in the line, are SSD-enabled, providing outstanding performance and making them ideal for solving both the primary and back-up/recovery storage needs for industries of all sizes.

### Features / Benefits

#### REAL-TIME DEDUPLICATION AND COMPRESSION

GreenBytes provides cutting-edge deduplication technology built into the GBFS file operating system. Unlike other deduplication technologies that are primarily used only for backup operations, GreenBytes has created storage appliances that permit real-time, on-the-fly deduplication of file blocks as they are stored, dramatically accelerating the process while eliminating the need for costly "scratch space disk" required of "post-storage" deduplication technologies.

This inline deduplication and compression with deduplication results in performance ranging from a 30% reduction in ordinary user files to a 10/20x reduction of data backup streams and a 50x reduction in virtual desktop/VDI environments.

#### PERFORMANCE

GB-X Series storage appliances include multiple unique, patent-pending technologies that dramatically boost storage performance. GreenBytes' storage solutions provide extremely high-speed inline deduplication performance while maintaining superlative ingest rates as the data store scales, unlike many competing products.

GreenBytes' deduplication technology and appliances are so powerful that companies are using them for both primary and back-up storage – achieving unprecedented overall data center efficiency. GreenBytes' GB-2000 with optional 10 Gigabit Ethernet boasts an ingest rate of 650 MB/s and the GB-4000 with standard 10 GbE has an ingest rate of 950 MB/s - resulting in performance ratios of about three times that of competing deduplication appliances.

## SCALABILITY

GreenBytes' GB-2000 appliance is easily and efficiently scalable from an entry point of 12 TB up to 60 TB. The GB-4000 appliance expands this scalability with a 24 TB base that expands to 216 TB.

## ENERGY EFFICIENCY

GreenBytes' intelligent power management capabilities automatically put a subset of drives into a lower power state and keep only a subset of drives active. A fully-populated 216 TB GB-4000 appliance has a power consumption rate of just 7 watts/TB under a heavy load power-managed-- less than a third of the power capacity in comparison to one of the industry's leading storage servers configured for 48 TB (average consumption of 22 watts/TB.) Additionally, the GB-2000 appliance draws about the same power required for two light bulbs -- less than 150 watts.

Specific power consumption averages for various configurations of the GB-2000 and GB-4000 appliances are included in the table below:

	GB-4000	GB-4000-ES-48*		GB-2000	GB-2000-ES-24*
Idle	290 watts	140 watts	Idle	140 watts	70 watts
Heavy Load	390 watts	240 watts	Heavy Load	240 watts	120 watts

\*ES = Expansion Shelf -24 or -48 refers to the number of drive slots.

## RELIABILITY

GreenBytes' GB-2000/GB-4000 features redundant power and cooling, redundant controllers, and multi-path I/O. GB-X Series appliances support redundancies at all levels – protecting data even in the event of two concurrent disk failures. GreenBytes' appliances can transparently recover from any single point of failure, and allow for the on-line replacement of failed components.

GB-2000/GB-4000 protects data with multiple RAID configurations including ultra-fault tolerant double parity along with optional global hot spares. Furthermore, GreenBytes' enhanced hashing algorithms, in combination with proactive disk scrubbing, result in the highest level of data integrity and protection against silent data corruption. Additional reliability enhancing resources such as SSD and disk can be added easily without incurring any downtime.

When configured for replication, organizations can create high-speed copies in geographically separate locations with easy-to-use NxN replication to other GB-X Series appliances.

## ARCHITECTURE

GreenBytes' GB-X Series appliances represent the most advanced open architecture available in the industry. Additionally, GreenBytes has "future-proofed" the GB-4000 by utilizing the latest 2.5-inch enterprise class disks and providing 10-Gigabit Ethernet as a standard feature. The 2.5 chassis allows solid-state and magnetic disks to share a high performance backplane while simultaneously improving energy efficiency and performance.

### GB-2000

Intel® Xeon® 5520 processor (8 virtual cores)  
12 Gb RAM  
4x1 Gb Ethernet  
1x1 Gb Service Port  
Drive Bays: 24 2.5 inch SATA/SAS Hot Swap  
Backplane: Active SAS 12 Gb/s  
External SAS Connections: 2 x 12 Gb/s

### GB-4000

Dual Intel Xeon 5520 processor (16 virtual cores)  
24 Gb RAM  
4x1 Gb Ethernet  
2x10 Gb Ethernet (standard)  
1x1 Gb Service Port  
Drive Bays: 48 2.5 inch SATA/SAS Hot Swap  
Backplane Active SAS 24 Gb/s  
External SAS Connections: 4 x 12 Gb/s



## EASY-TO-USE INTERFACE

GreenBytes has created the only storage appliance that is completely administrated from Microsoft Management Console (MMC) using custom MMC plug-ins. The intuitive administration tool suite accommodates the entire set of data management tasks with a single MMC to enable simple administration of even the most complex data storage scenarios. With the toolset, initial configuration of a GB-2000/GB-4000 system for any user environment is as easy as setting up a home wireless router. Unlimited snapshots with integrated Microsoft shadow copy support, replication, and easy cross-platform (CIFS/NFS) file-sharing tasks are easily administered with the tool.

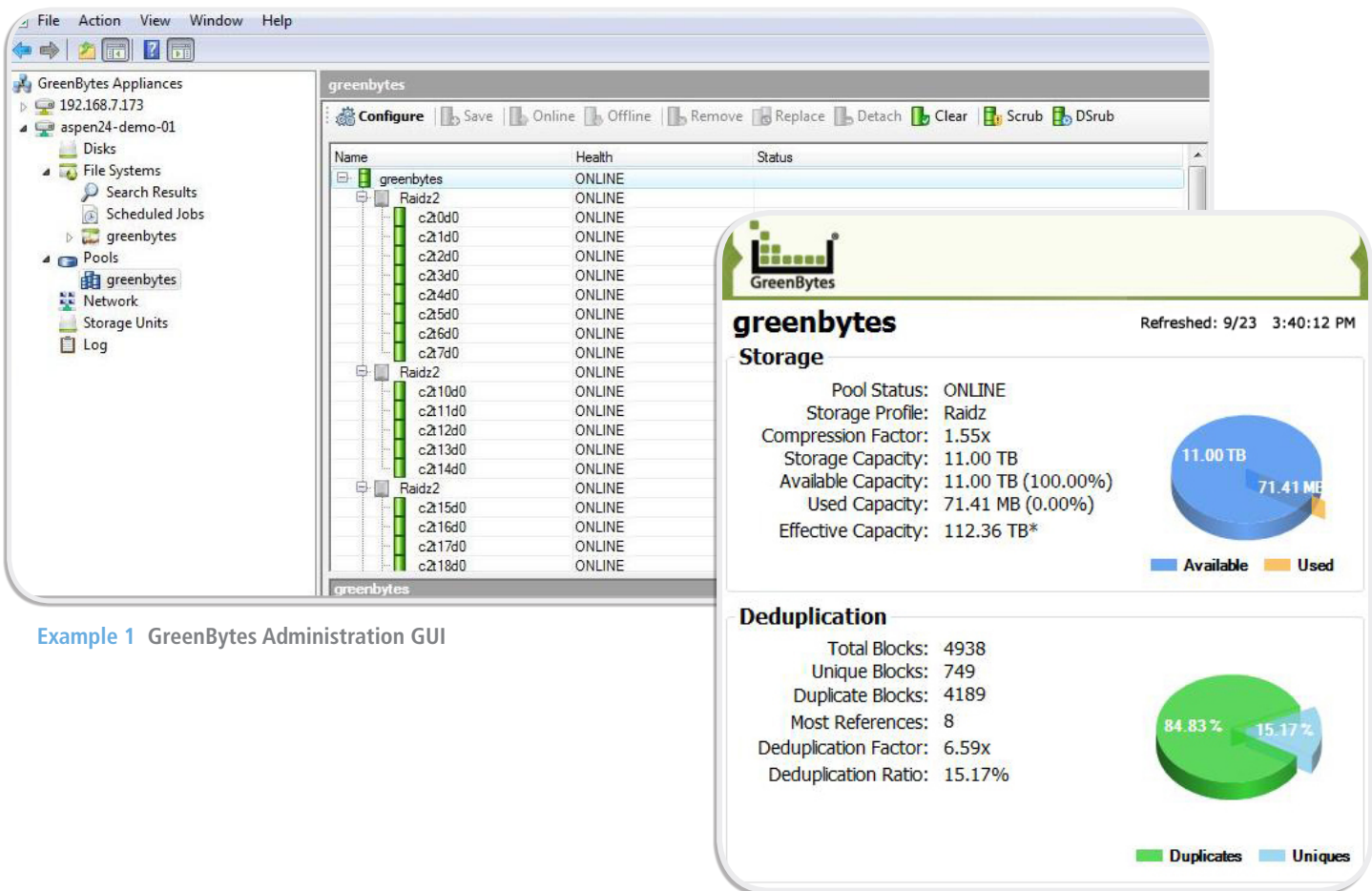
Additionally, the GB-2000/GB-4000 is equally usable in Windows and UNIX file system environments. With the GB-2000/GB-4000 system, Windows Active Directory can be used to auto-provision storage using GreenBytes' built-in CIFS server, eliminating the need for Samba middle-ware. GreenBytes' GB-2000/GB-4000 is also the world's only inline deduplicating iSCSI storage technology. GreenBytes appliances can support iSCSI volumes as well as thousands of users, with the associated storage being provisioned from within a single, centrally managed pool.

## COST EFFICIENCY

GreenBytes has engineered its new GB-2000/GB-4000 appliances to provide unparalleled performance, scalability and ease-of-use for customers -- at price points substantially lower than competing technologies and products -- providing users with the lowest TCO and highest ROI available. Furthermore, the GB-2000/GB-4000 storage appliances do not require software licenses. GreenBytes bundles in all of its advanced software features at no extra charge.

## SUPPORT

GreenBytes provides a variety of technical support services including installation and set-up, configuration assistance, hardware and software maintenance and a guaranteed warranty - all backed by GreenBytes' world-class 7x24x365 customer service and support.



Example 1 GreenBytes Administration GUI

Example 2 Display of Data Allocation



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