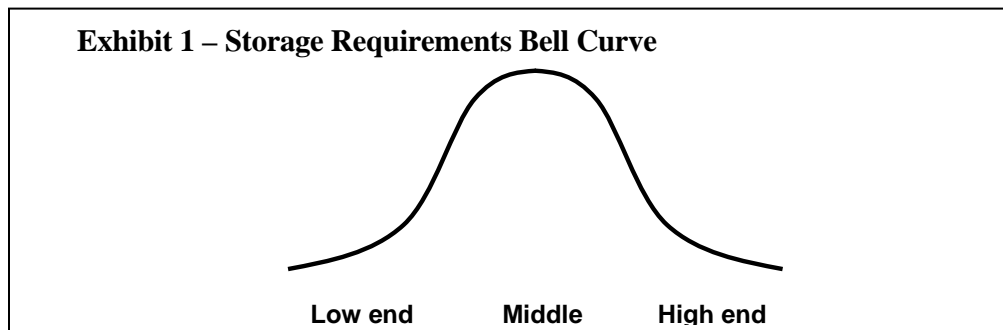


Nimbus Breeze Hybrid Series — IP Storage for the Heart of the Bell Curve

Analyst: Michael Fisch

Management Summary

Nimbus recently announced the new *Breeze Hybrid* series of IP storage systems. They are designed to meet a wide range of requirements. If you look at enterprise storage requirements in terms of a bell-shaped curve, one tail of the curve represents the high end. These enterprises need the highest performance, scalability, and advanced capabilities and are prepared to pay a quarter million to multiple millions of dollars for storage systems. The opposite tail of the bell curve represents smaller businesses that need to store data inexpensively, without much consideration for manageability or data protection beyond basic backup. They just want inexpensive disks. In the middle or heart of the bell curve are businesses that want flexible, consolidated storage systems that meet a variety of requirements and have a balance of capability and cost-effectiveness. These businesses have various application requirements, which will evolve unpredictably in the future. They want storage systems for today's requirements that grow and flex with them in the future, whichever direction they take.



Nimbus *Breeze Hybrid VH630* and *MH860* are designed for the heart of the data storage bell curve. These IP storage systems offer remarkable flexibility with features like:

- **Ultra-fast and standard IP connections** – Supports both 10 Gbit/s and 1 Gbit/s Ethernet connections to host servers.
- **SAN and NAS** – Supports iSCSI for block storage and CIFS and NFS for file serving.
- **Tiered storage** – Supports SAS drives for performance, SATA II drives for cost-effective capacity, and solid state disk drives (SSD) for ultra-fast performance.

The Breeze Hybrid series also scales to 192 TB per system and offers replication and snapshot copies. The list price starts from under \$75,000 and includes all software. Read on for details.

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The IP Storage Alternative

IP storage is a form of SAN-attached storage that connects to servers over an IP network, as opposed to using Fibre Channel or other network protocol. It typically uses 1 Gbit/s Ethernet connections, though high-performance 10 Gbit/s Ethernet has also appeared recently. IP over Ethernet is by far the most commonly used LAN technology in the world. It is ubiquitous, from large enterprise environments to home networks. A storage system that leverages IP over Ethernet can provide a shared, consolidated storage system with:

- **Lower costs** – By virtue of economies of scale, Ethernet networking equipment and adapters will always be the most cost-competitive.
- **Simpler network administration** – Network administrators who already know IP do not have to learn and manage another specialized network protocol.

IP storage is often billed as an up-and-coming competitor to Fibre Channel. This is true in that it is gaining momentum and market share relative to Fibre Channel, though the two will coexist for the foreseeable future. IP storage is not truly new, though. Enterprises have used dedicated NAS devices for sharing files over IP networks for two decades. Sometimes they even hosted applications on NAS systems. The introduction of iSCSI in the last 6 or 7 years opened the door for traditional block storage over IP. Today, IP storage implies iSCSI, but some products also include NAS for delivering a unified or all-in-one storage system.

Nimbus Breeze Hybrid Series

The new Nimbus Breeze Hybrid is a series

of unified IP storage platforms designed to meet a wide range of enterprise requirements. In *Exhibit 2* below, you can see the specifications for the Breeze VH630 and MH860 models. Both scale to 192 TB and have two 10 Gbit/s and four 1 Gbit/s Ethernet ports. The difference is that the MH860 has twice as much write-through cache for greater performance and a larger starting point for capacity at 32 TB.

The Breeze Hybrid has several salient features.

Ultra-Fast and Standard IP Connections

It comes standard with both 1 Gbit/s and 10 Gbit/s Ethernet ports for SAN connectivity. The latter allows it to leapfrog Fibre Channel's maximum transfer rate that was only recently increased to 8 Gbit/s. It also means greater storage access speed, which is helpful and even necessary for data-intensive applications and virtualized servers running VMware *ESX*, Citrix *XenServer*, or Microsoft *Hyper-V*. If application performance is limited by storage access speed, a 10 Gbit/s pipe could be the remedy.

SAN and NAS

Enterprises need both SAN and NAS for block and file storage, respectively, so why not both in one system? Applications tend to run on block storage, while NAS is for file sharing. It is simpler and generally less expensive to buy, install, and manage one system instead of multiple specialized devices. In fact, SAN and NAS systems are similar – disk drives, data protection features, like RAID and replication, and network interface are the same for SAN and NAS in an IP environment. The main difference is how data is logically structured and interfaced. It makes sense to consolidate

Exhibit 2 – The Breeze Hybrid Series of IP Storage Systems

	Breeze VH630	Breeze MH860
10 Gbit/s Ethernet ports	2	2
1 Gbit/s Ethernet ports	4	4
SAS ports for disk arrays	4	4
Number of drives	22 to 192	34 to 192
Max capacity	192 TB	192 TB
Write-through cache	8 GB	16 GB
Built-in SSD	32 GB mirrored	32 GB mirrored
Starting price	Under \$75,000 for 22 TB + all software	Under \$120,000 for 34 TB + all software

Source: Nimbus Data Systems

them in one system, especially for the broad swath of requirements in the middle of the bell curve.

Tiered Storage

There are clear benefits to employing tiered storage. Since not all data requires the same service level, it makes sense to classify and place it in different tiers of storage to avoid overpaying for storing secondary data or under-delivering on performance and availability for critical data. Tiered storage enables a balanced and cost-optimized approach.

The Breeze Hybrid delivers numerous tiers of storage in one system. It supports SAS drives for performance, SATA II drives for cost-effective capacity, and solid-state disk drives (SSD) for ultra-fast performance. It can also apply different RAID schemes, including RAID 0, 1, 5, 6, 10, and 50.

The introduction of SSD drives based on flash memory is new for enterprise storage and will force a shift in the landscape. Some applications, such as online transaction processing for financial services, require a very high throughput and very fast response time to complete their work in a timely fashion. These are situations where time really is money, and SSD offers a means to store this data with supercharged performance while minimizing energy consumption and floor space. In effect, it creates a *tier 0* that complements and even displaces disk drives at the high end of the spectrum. The ability to place and manage SSD drives in the Breeze Hybrid system is a great feature.

HALO Storage Operating System

The HALO storage operating systems is the software foundation of the Breeze Hybrid system. It provides end-to-end configuration, management, data protection, and system monitoring through a Web-based interface. Features include:

- **Storage virtualization** – Allows administrators to define storage pools based on service level tiers as well as provision and expand volumes dynamically.
- **Point-in-time copies** – Writable snapshot and clone copies for test and development and fast recovery to previous points in time.

- **Remote replication** – Synchronous and asynchronous replication for disaster recovery.
- **Multi-path IO support** – Redundant server connections for high availability.

All HALO features come standard – there are no incremental charges for certain features, as is typical with products from other storage vendors.

Conclusion

Nimbus' Breeze Hybrid series offers strong IP storage systems for requirements that fall in the heart of the bell curve. If you need a storage consolidation solution with balance of capability and cost, plus great flexibility, including top-end performance, you should look at the Breeze Hybrid.



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- ***The Clipper Group can be reached at 781-235-0085 and found on the web at www.clipper.com.***

About the Author

Michael Fisch is Director of Storage and Networking for The Clipper Group. He brings over 12 years of experience in the computer industry working in sales, market analysis and positioning, and engineering. Mr. Fisch worked at EMC Corporation as a marketing program manager focused on service providers and as a competitive market analyst. Before that, he worked in international channel development, manufacturing, and technical support at Extended Systems, Inc. Mr. Fisch earned an MBA from Babson College and a Bachelor's degree in electrical engineering from the University of Idaho.

- ***Reach Michael Fisch via e-mail at mike.fisch@clipper.com or at 781-235-0085 Ext. 211. (Please dial "211" when you hear the automated attendant.)***

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