

Magic Quadrant for Midrange and High-End NAS Solutions

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Consolidation in the midrange and high-end network-attached storage market continued in 2010, while new solutions emerged, increasing competition. Users should evaluate NAS products based on their business needs, workload characteristics, vendor capabilities and infrastructure strategy.

WHAT YOU NEED TO KNOW

This document is an updated version of the Magic Quadrant published in March 2010. It's a point-in-time snapshot of vendors' positions in the market at the time of the evaluation. Therefore, it is more useful for users to evaluate the relative positions of vendors on the same chart than to compare the current position of a particular vendor with its position in the prior iteration.

Since the last iteration of this Magic Quadrant report, the midrange and high-end network-attached storage (NAS) market has been further consolidated with EMC's acquisition of Isilon Systems in December 2010. Isilon is therefore withdrawn from this Magic Quadrant as a separate entity. The most recent announcement from NetApp to acquire LSI block-access storage system business without the ONStor NAS portfolio, coupled with LSI's new focus on semiconductors, indicates potential high risk associated with the ONStor business. Meanwhile, two new vendors and solutions emerged that have qualified for Gartner's inclusion criteria. They are Symantec/Huawei Symantec and Scale Computing. Symantec and its joint venture with Huawei (called Huawei Symantec) in China are selling the exactly same NAS systems, with Symantec also selling its NAS software separately from hardware. Scale Computing is targeting the small and midsize business (SMB) market with a scale-out unified storage system. While market consolidation removes the uncertainty about the acquired vendor's viability and provides stronger funding to further develop and market the innovative technologies, new solutions in the market keep the competition healthy and in balance.

From a technology perspective, the concept of unified storage continues to resonate among the user community and the vendor industry, as the vast majority of the NAS solutions also support block protocols now. However, not many vendors offer truly unified storage management software for both files and blocks. NAS support of the VMware environment has become more prominent in the past year, as more and more NAS vendors have invested in this area to increase their products' appeal.

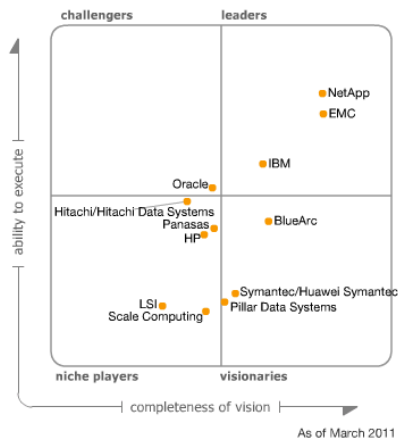
In today's market, it's difficult to find one midrange or high-end NAS product that can cater to all needs. File systems embedded in NAS are often designed to solve one major pain point, with additional features being added later to broaden the use cases and benefits. Users evaluating midrange and high-end NAS products should carefully examine the pros and cons of the different architectural designs.

Users planning to consolidate Windows file servers for consolidated home directories should look for a NAS platform that has strong integration with the Microsoft environment, while users struggling to find enough bandwidth for their applications should focus on those platforms that can meet their cutting-edge performance demand. Other users who are looking for storage tiering and archiving solutions to reduce the cost of file storage should look for NAS platforms that have an embedded policy engine, or strong partnerships with archiving software vendors, to automate the storage tiering process, as well as those that support deduplication and compression.

Gartner encourages users to consider taking on the risk of evaluating and potentially adopting emerging vendors. Many small vendors' key customers raved about the personal attention that they had received from the vendor's service and support staff and how fast they could resolve their technical problems. On the other hand, they also wished that the small vendors had an online knowledge portal similar to the market leaders and better diagnostic and management tools (both graphical user interface [GUI] and scripting), as well as better documentation.

MAGIC QUADRANT

Figure 1. Magic Quadrant for Midrange and High-End NAS Solutions



Source: Gartner (March 2011)

Market Overview

2010 was a strong recovery year for the midrange and high-end NAS market, which grew 33% over 2009 in terms of hardware vendor revenue. In contrast, the market declined by 2% in 2009 due to severe IT spending cuts triggered by the financial crisis. Compared with the midrange and high-end block-access modular storage hardware market, which grew by 16% in 2010, the midrange and high-end NAS hardware market's growth rate was twice as fast. This favorable growth rate was a result of several factors: fast-growing unstructured file data, widespread availability of data deduplication/compression in NAS storage solutions, ease of management, support of virtualized environments such as VMware, and the flexibility of unified storage.

All midrange and high-end NAS product lines from major storage vendors exhibited strong or healthy growth in 2010. Market leader NetApp was able to maintain its leading position and boosted its hardware revenue market share in 2010 by 1 percentage point to 46% when faced with increased competition. EMC's Celerra accelerated its growth mainly because of its migration toward a unified storage with CLARiiON, and together with the fourth-quarter-2010 revenue from Isilon, EMC grew its midrange and high-end NAS system business by 69% in 2010 with a system revenue market share of 22% (excluding Data Domain revenue). Both NetApp and EMC recently refreshed their NAS systems with faster performance and higher scalability, and both released software bundles to make software suites more affordable to compete with vendors that don't charge software separately. While IBM continues working on simplifying its Scale Out Network Attached Storage (SONAS) offering, Oracle has been focusing on deepening the integration between the ZFS Storage Appliance and Oracle applications and started replacing some NetApp systems deployed internally. Isilon accelerated its revenue growth in the fourth quarter of 2010 and experienced annual growth of almost 70% in 2010. BlueArc and Panasas also witnessed healthy revenue growth and achieved or maintained profitability in 2010. Hitachi/Hitachi Data Systems continued to invest in the integration of Hitachi NAS (HNAS) with its other storage platforms and gained a few large accounts, boosting revenue. HP's first year of selling the X9000 was relatively successful, especially for healthcare, life science and online archiving environments where aggressive pricing played a major role in the selection process.

Two new entrants in this year's Magic Quadrant are Symantec/Huawei Symantec and Scale Computing. While Huawei Symantec (a China-based joint venture) has been selling a NAS

solution using Symantec software and Huawei hardware in China and some emerging countries, Symantec recently entered the U.S. and U.K. markets with the same NAS turnkey solution, in addition to its FileStore NAS software launched a year earlier. Scale Computing simplified the IBM General Parallel File System (GPFS) and built a scale-out unified storage system for the SMB market, where storage has been mainly direct-attached storage and Internet Small Computer System Interface (iSCSI) storage area network (SAN) offerings from vendors such as Dell and HP.

Market Definition/Description

NAS products are storage systems with embedded file systems providing file-sharing services for heterogeneous computing systems (clients or servers) attached to a LAN on the front end. On the back end, they can be configured with internal disks or direct-attached storage (also known as stand-alone NAS), or they can be attached to a SAN switch to access SAN storage arrays, in which case they are referred to as NAS gateways. They use industry-standard remote file protocols, such as Network File System (NFS) for the Unix/Linux environment and Common Internet File System (CIFS) for the Windows environment. Besides off-loading file input/outputs (I/Os) from client and servers, they frequently use an operating system (OS) that is streamlined and optimized for file services with add-on feature functions to remedy the weaknesses from the host file systems. Because some applications, such as Oracle database applications and VMware, are built on files, instead of blocks, NAS is increasingly used as application storage for those environments, providing the ease-of-use benefits to users compared with storage arrays using block protocols, which may offer higher performance than NAS. As a result, many midrange and high-end NAS products are used to consolidate storage for both server applications and home directories for PC clients. Many NAS products today also offer native iSCSI target support, making them unified NAS/SAN storage for even wider application support.

This Magic Quadrant includes only midrange and high-end NAS solutions, not low-end NAS (under \$25,000 average selling price [ASP]), because low-end NAS addresses different user environments with different user requirements. Gartner's definition for NAS solutions includes NAS appliances and NAS software products that can run on different hardware. A NAS appliance provides a turnkey solution that combines NAS hardware and NAS platform software. Some NAS appliances tightly integrate disk storage, while others only provide the NAS controller/engine as a gateway and leverage existing disk arrays using redundant array of independent disks (RAID) technology in direct-attached or SAN-attached architecture. NAS software products include commercial network-based or storage-based file systems that have native NFS and/or CIFS support. These file systems can be based on proprietary OS kernels or an industry-standard OS.

Inclusion and Exclusion Criteria

The inclusion of a vendor on a Magic Quadrant is determined by the authors, with input from Gartner's analyst research community. It is based on vendor-independent selection criteria and evidence that a vendor is delivering or executing in line with these criteria. A vendor has to meet all the following specific criteria for inclusion in this Magic Quadrant:

- Support a scale-up or scale-out architecture
- Offer NFS and/or CIFS as standard client data and/or metadata access protocols
- Provide primary file system storage, instead of storage that narrowly targets backup or archive data
- Have an ASP of \$25,000 or more
- Generate annual revenue of \$5 million or more

- Have global presence in two or more large geographic markets
- Have at least three production customer references

Other factors that contribute to the inclusion of a vendor in the midrange and high-end NAS Magic Quadrant include:

- Market recognition, market share and revenue data
- Client interest, as measured by the level of client inquiry received on a vendor's products, and other client feedback
- Use of unique, unusual or interesting technology

This report is not region-specific.

Microsoft Windows Storage Server-based NAS systems are excluded from this Magic Quadrant because the vast majority of those systems are sold with an ASP below \$25,000 and compete mainly in the low end of the NAS market.

Special-purpose appliances using NFS/CIFS protocols that serve mainly as backup and archiving targets, such as EMC Data Domain, Hitachi Content Archive Platform and NEC's HydraStor, are not included because today they mainly compete in a different market to meet user needs for intelligent backup or archiving storage. They are typically not used as a primary NAS device. Shared disk file systems and some cluster file systems running on application hosts are not included in this Magic Quadrant, because they typically require different client agents for different OSs and have limited NFS/CIFS support today. However, should the aforementioned products evolve into primary NAS solutions (such as with the adoption of parallel NFS with NFS v.4.1), they will be re-evaluated for inclusion.

NAS accelerators, such as those from Avere Systems and Alacritech, are not included because they are in the NAS peripheral market. Cloud file service gateways that support NAS protocols are also not included, as they only offer part of the NAS solution and rely on partners to offer a complete solution (such as primary NAS storage and cloud NAS storage).

Vendors that meet the Gartner criteria and are included in this Magic Quadrant are listed in alphabetical order with their products, as follows:

- BlueArc — Titan and Mercury series
- EMC — Celerra and VNX series, Isilon IQ series, Multi-Path File System
- Hitachi/Hitachi Data Systems — HNAS
- HP — StorageWorks X9000 Series
- IBM — System Storage N series and SONAS
- LSI — ONStor Clustered NAS Gateways
- NetApp — FAS series and V-Series
- Oracle — ZFS S7000 series
- Panasas — ActiveStor
- Pillar Data Systems — Axiom

- Scale Computing — M Series and S Series with Intelligent Clustered Operating System (ICOS)
- Symantec/Huawei Symantec — FileStore software and N8000 series

The 15 criteria used in evaluating a vendor and positioning it on the Magic Quadrant are identified and weighted in the Evaluation Criteria section. Magic Quadrants measure the current and relative strengths of vendors in the marketplace. They are not a direct measure of a product's attractiveness or a vendor's support capabilities. Therefore, using a Magic Quadrant to ease concerns about a company's long-term financial viability is reasonable; using it as the only justification in selecting a vendor or product is not. It is okay to buy from vendors that are not in the Leaders quadrant. In fact, we frequently recommend including one or more emerging storage vendor on your shortlist to gain access to innovative features and as negotiation leverage with established vendors.

Added

Scale Computing

Symantec/Huawei Symantec

Dropped

Isilon Systems, which was acquired by EMC

SGI, which no longer supplies its branded NAS systems, now delivering only host-based file system products

Evaluation Criteria

Ability to Execute

The Ability to Execute axis highlights vendor positioning directly attributable to vendor actions since the last Magic Quadrant iteration. While important, the product attribute is just one of the seven attributes evaluated by Gartner to determine a vendor's placement on the Magic Quadrant. The criteria weights used for this analysis are the same as those used for the Magic Quadrant for Midrange Enterprise Disk Arrays to ensure consistency and are unchanged from the 1H09 iteration of the Magic Quadrant for Midrange and High-End NAS Solutions.

Table 1. Ability-to-Execute Evaluation Criteria

Evaluation Criteria	Weighting
Product/Service	high
Overall Viability (Business Unit, Financial, Strategy, Organization)	high
Sales Execution/Pricing	high
Market Responsiveness and Track Record	high
Marketing Execution	high
Customer Experience	high
Operations	standard

Source: Gartner (March 2011)

Completeness of Vision

Completeness of vision focuses on a vendor's overall potential. A vendor with average vision will anticipate and respond to change by accurately perceiving market trends and exploiting technology. However, a vendor with superior vision can anticipate, direct and initiate market trends. Therefore, a vendor that scored high on the Completeness of Vision axis does not necessarily have the most innovative product. The criteria weights used for this analysis are the same as those used for the Magic Quadrant for Midrange Enterprise Disk Arrays to ensure consistency and are unchanged from the 1H09 iteration of the Magic Quadrant for Midrange and High-End NAS Solutions.

Table 2. Completeness-of-Vision Evaluation Criteria

Evaluation Criteria	Weighting
Market Understanding	standard
Marketing Strategy	high
Sales Strategy	high
Offering (Product) Strategy	high
Business Model	high
Vertical/Industry Strategy	standard
Innovation	high
Geographic Strategy	standard

Source: Gartner (March 2011)

Leaders

Vendors in the Leaders quadrant have the highest scores for their ability to execute and completeness of vision. A midrange and high-end NAS vendor in the Leaders' quadrant has the market share, credibility, and marketing and sales capabilities needed to drive the acceptance of new technologies. These vendors demonstrate a clear understanding of market needs; they are innovators and thought leaders; and they have well-articulated plans that customers and prospects can use when designing their storage infrastructure and strategies.

Challengers

A vendor in the Challengers quadrant participates in the broad, general-purpose midrange and high-end NAS market and executes well enough to be a serious threat to vendors in the Leaders quadrant. They have strong products, as well as sufficient credible market position and resources to sustain continued growth. However, they lack adequate depth in the visionary attributes to qualify for the Leaders quadrant. Financial viability is not an issue for vendors positioned in the Challengers quadrant.

Visionaries

A midrange and high-end NAS vendor in the Visionaries quadrant often delivers uniquely innovative products that address operationally or financially important end-user problems at a broad scale but has not demonstrated the ability to capture substantial market share or sustainable profitability. Visionary vendors are frequently emerging companies and acquisition targets for larger established companies. The likelihood of acquisition often reduces the risks associated with installing their systems. They could also be established companies that launched

innovative new products for the broad market but have not been able to gain traction in the market.

Niche Players

Vendors in the Niche Players quadrant are often narrowly focused on specific market or vertical segments, such as SMBs or high-performance computing (HPC), that are generally underpenetrated by the larger midrange and high-end NAS vendors. This quadrant may also include vendors that may have products that address the broad market but are still ramping up their overall go-to-market efforts and have yet to develop the vision or the execution to break out of the Niche Players quadrant.

Vendor Strengths and Cautions

BlueArc

Strengths

- BlueArc's Titan (high-end) and Mercury (midrange) NAS systems provide high performance, file system scalability and modular upgrades, supporting LSI, Hitachi Data Systems' and DataDirect Networks' storage arrays in the back end. Its well-rounded feature set includes a policy-based data migration tool for storage tiering within the system, virtual filer with automated failover, and a common namespace spanning eight nodes.
- In 2010, major enhancements included high-speed object-based replication for disaster recovery (Jet Mirror); writable clones (Jet Clones); tiered file system for intelligent use of solid-state drives; automated home directory creation for both CIFS and NFS; integration with Atempo ADA and Hitachi Data Systems HCP 3.0; and BlueArc management plug-ins for VMware.
- BlueArc grew its revenue at a pace similar to that of the total midrange and high-end NAS market in 2010. It also claimed it became profitable for the first time at the end of 2010.

Cautions

- Despite the improved sales momentum, BlueArc remains a small part of the overall midrange and high-end NAS market with a small revenue market share.
- Despite much-improved support for VMware, BlueArc has yet to produce significant numbers of VMware deployments.
- As a private company, BlueArc lacks transparency into its financial health.

EMC

EMC completed its acquisition of Isilon Systems at the end of 2010. Therefore, Isilon is evaluated as part of EMC's NAS portfolio in this Magic Quadrant.

Strengths

- EMC's acquisition of Isilon's scale-out storage systems demonstrated its vision in capturing fast-growing opportunities with unstructured data outside traditional data centers, as well as in laying a storage infrastructure foundation for future cloud service offerings.

- The new Unisphere management tool and the VNX series represent solid initial steps on a path to reach a unified storage architecture with simplified management as the target. EMC also delivered deeper integration with applications from virtualization vendors, such as VMware and Microsoft, in 2010.
- Both Celerra and Isilon experienced fast revenue growth in 2010, gaining market share from competitors.

Cautions

- The new VNX series run two separate operating systems — VNX Operating Environment for Files (formerly known as Celerra DART) for NAS volumes and VNX Operating Environment for Blocks (formerly known as CLARiiON FLARE) for Fibre Channel and iSCSI logical unit numbers, each with its own snapshot mechanisms and remote replication tools, making the systems not a seamless unified storage platform.
- The Isilon products have architectural limitations in serving transactional workloads with high input/output operations per second (IOPS) requirements; they are best-suited for large, sequential workloads today. For transactional workloads with small-size I/Os, we suggest customers evaluate the VNX series.
- Since the Isilon NL series and Celerra/VNX can be used as backup and archive targets, and those functions overlap with Data Domain, Atmos and Centera, customers should ask for future development road maps before investing in Isilon and Celerra/VNX for those purposes.

Hitachi/Hitachi Data Systems

Strengths

- Active-active clustering (two to eight nodes), cluster namespace, hardware-accelerated performance, multiprotocol file services, 256TB volumes, virtualized file systems, expansive scalability, efficient utilization, and intrasystem file tiering make the HNAS system a competitive solution for consolidating small-to-large NAS filers and general-purpose file servers, as well as deployment to support big data workloads. In 2010, Hitachi Data Systems introduced Hitachi Dynamic Tiering and Tiered File Systems, which provide customers with more-granular (page-based) block tiering and file system metadata optimization.
- HNAS users report that Hitachi Data Systems postsales support personnel provide knowledgeable and responsive technical support; only the most complex microcode issues require assistance from BlueArc's development engineering organization.
- Proven product stability and features and increased integration with Hitachi Content Platform, Hitachi SAN storage and the Hitachi Command Suite make HNAS an attractive file-access NAS solution for Hitachi Data Systems's large block-access enterprise customer base.

Cautions

- The lack of controller-based data deduplication and compression inhibits HNAS competitiveness in applications that benefit from these functions, such as disk-based backup/recovery and archiving, as well as in server and desktop virtualization infrastructures.

- User feedback indicates that provisioning HNAS can be a fairly complex procedure that requires careful planning and occasionally the use of command line interface to complete the process. In addition, users report that they would like for Hitachi, or BlueArc, to further enhance the granularity of performance monitoring tools to best-in-class status.
- Sourced from BlueArc, the product attractiveness of the Hitachi Data Systems HNAS platform is dependent on privately held BlueArc's ability to develop the core features and functions in a timely manner to keep the HNAS product competitive.

HP

Strengths

- The HP StorageWorks X9000 family is based on the Ibrx file system, which is a scale-out, switchlike virtual file system running on Linux, aggregating each commodity node within a common namespace cluster with parallel metadata access. The Ibrx solution can handle both random and sequential workloads and both large and small I/Os and offers automated data tiering.
- New capabilities introduced in 2010 include native Windows file serving support, which improves performance and reliability over the previous SAMBA-based implementation; a new management console and GUI dashboard; support for Network Data Management Protocol (NDMP) v.3 and v.4, HTTP/HTTPS and FTP/FTPS protocols; Infiniband network connectivity; and 2TB drives along with additional drive configurations. In February 2011, HP also announced the X9000 NAS gateway support for 3PAR storage arrays.
- HP regained NAS sales momentum, adding 200 new customers in 2010 and more than doubling revenue compared with 2009, albeit from a small base. Health and life sciences and online archiving deployments were particular areas of success for HP because of demand for bulk storage in those environments.

Cautions

- The HP StorageWorks X9000 customers often prefer more robust block-level snapshot and replication from back-end storage arrays. The X9000 series also lacks independent software vendor (ISV) integrations for the broad NAS market, limiting its competitiveness in the general NAS market. Therefore, HP has focused its sales efforts in verticals that value the scale-out capabilities and price-to-performance ratio of the product.
- Because the X9000 entry price is in the range of \$40,000 to \$50,000, HP continues to present customers with a separate NAS architecture based on the Windows Storage Server in the lower end of the market. This complicates X9000 deployments where users need units across wide ranges of scale.
- Because the X9000 doesn't target the mainstream NAS market, HP remains a relatively small NAS vendor with very limited market share in the midrange and high-end NAS market.

IBM

Strengths

- IBM retained the No. 3 slot for revenue market share in midrange and high-end NAS. IBM's primary NAS offering, which generates the bulk of the revenue, is the rebranded N series from NetApp, giving IBM the competitive advantages provided by NetApp's unified storage architecture and its comprehensive data management software suite.
- IBM announced SONAS in February 2010, based on its proven GPFS. It builds on its experience from its prior scale-out file services (SoFS) offering and delivers global namespace NAS deployments at a scale beyond the capabilities of most of the other NAS products in the market with solid SPEC NFS benchmark results. It has been deployed to a 39-node configuration and more than a billion files. Initial user feedback is generally positive.
- New SONAS features introduced in 3Q10 include integrated life cycle management and hierarchical storage management that covers tape. IBM's biggest success with SONAS so far is with healthcare and education verticals, as well as the core component in cloud deployments.

Cautions

- Despite initial success, the SONAS hardware revenue market share of the overall high-end NAS market is only about 1%.
- IBM generally prefers to sell its own block and file products over the N series, due to higher margins. This is likely to limit future NAS share growth unless SONAS can be made to fill the gap.
- Although SONAS has somewhat simplified the implementation of a complex scale-out, parallel file system with often lengthy customization by high-level engineers, it's still not competitive in terms of ease of use when compared with a few major competitors, and it supports fewer ISV integrations than leading competitors.

LSI

Most of the LSI ONStor evaluation was done before NetApp's announcement to acquire LSI block-access storage business. Customers should pay close attention to any changes to the ONStor development plan from LSI.

Strengths

- LSI continued investment in engineering and sales and support for its ONStor product after the acquisition in August 2009. Its biggest success has been with Internet and service providers, and its most successful channel has been a meet-in-the-channel with existing OEMs for LSI's block products.
- ONStor's NAS architecture is a combination of scale-up and scale-out with a focus on file server consolidation. Its NAS gateways stand out with their agile virtual file servers for cross-node failover and load balancing with user transparency. Other notable features include a scalable file system for each node and a global namespace that unites eight nodes of ONStor's systems and Windows file servers.

- Engineering in 2010 was focused on porting to the x86 architecture for cost control and compatibility with other LSI platforms, as well as laying the groundwork for future value-added features.

Cautions

- LSI lost its NAS market share in 2010. It did manage to add 35 new customers, but no significant OEM relationships were announced.
- On 9 March 2011, LSI announced the intended sale of its block array business to NetApp and indicated that LSI will now focus on semiconductors. The ONStor business is not a part of the sale but is inconsistent with the new focus, suggesting more changes to come.
- LSI sells its block-access storage systems almost entirely through OEM relationships and had only limited reach into direct reseller channels.

NetApp

Strengths

- NetApp remains one of the few truly unified storage providers among all top-tier vendors, with its software features continuing to be industry benchmarks. The company was able to regain some of the NAS revenue market share that it had lost in 2009. Its fast revenue growth in 2010 was driven by its successful campaign targeted at midsize enterprises with the value propositions of NFS supporting VMware and unified storage in consolidating Windows application storage.
- In 2010, NetApp increased its aggregate up to 100TB with Data ONTAP 8.0.1 and introduced compression to complement its popular deduplication capability. It added a RESTful object storage interface (based on its acquisition of Bycast) to its unified storage, targeting global content repositories. On the hardware side, it launched new systems with better performance and denser disk shelves.
- NetApp's new software bundles have simplified the procurement process and made software pricing more affordable. For customers seeking converged infrastructure, NetApp launched FlexPod for VMware with its partners Cisco and VMware, offering packages including servers, storage and switches.

Cautions

- The vast majority of the Data ONTAP 8.0 adoption was on the 7 mode (instead of the cluster mode) for larger aggregates, while the early adoption of the cluster mode focuses on high-performance NFS file services. The cluster mode is not ready for mainstream enterprise customers who require those 7-mode features that are still missing in the cluster mode. The ONTAP 8.1 scheduled for release later this year will likely continue to support the two modes: clustered and nonclustered modes of operation.
- While NetApp continues to enjoy its leading edge in unified storage, it's facing fiercer competition in the high-end NAS market, where file systems larger than 100TB are required and where high performance without the expensive Flash Cache is desired.
- NetApp is also challenged in the low-end NAS and unified storage market with new products from both major and emerging competitors.

Oracle

Strengths

- The core strength and product attractiveness of the Sun ZFS Storage Appliance (formally known as the Sun Storage 7000 Unified Storage System) in the NAS market remains its hybrid storage pool architecture and comprehensive features and functions offering that address performance, utilization, ease of use, power consumption and extensibility.
- The September 2010 release of four new Sun ZFS Storage Appliances featuring increased performance, expanded capacity options and tighter integration with Oracle business-critical applications, along with continued software enhancements, provides clear evidence that Oracle continues to invest in the development of this unified storage platform.
- The Sun ZFS Storage Appliance value-based pricing model aggregates hardware and software into one price, improving competitiveness and simplifying administrative management of software assets. This pricing model permits users to scale capacity without scaling associated software costs to support functions such as thin provisioning and local/remote replication.

Cautions

- Even though Oracle has made investments to certify Oracle Sun ZFS Storage Appliance compatibility with leading ISV software offerings, Gartner believes its R&D and support focus on Oracle application integration is unequivocal and may be an issue with regard to the completeness and timeliness of Oracle's support in an environment that requires shared storage to support VMware, Hyper-V, Microsoft SQL, Microsoft Exchange, Microsoft SharePoint or SAP infrastructure.
- The maturity of Oracle's technical support organization for the Sun ZFS Storage Appliance is inconsistent. Users may occasionally experience elongated periods to resolve technical problems or receive replacement components. The process of ordering add-on components or new systems can be time-consuming with unpredictable pricing and delivery.
- Oracle's mandatory one-year hardware warranty and "one size fits all" maintenance policies for the Sun ZFS Storage Appliance may not be a satisfactory coverage or operating expenditure arrangement for a large number of end users.

Panasas

Strengths

- Panasas is focusing on its core competency in the HPC environment with high-performance scale-out storage clusters, most notably in government labs and energy and high-tech manufacturing verticals. Its object-based file system provides fast disk rebuild and more granularity than traditional file systems. In 2010, Panasas introduced a new PAS 12 product line with a 64-bit architecture and integrated 10 Gigabit Ethernet, boosting a system's aggregate throughput to over 150 GB/sec with cost-effective Serial Advanced Technology Attachment (SATA) drives.
- Panasas is one of the very few companies that combine high scalability with simplicity. Its ActiveStor storage systems appeal to customers in the cutting-edge environments

through their high performance and their ease of implementation and management, as well as total cost of ownership.

- Leveraging its partnership with Dell, Panasas increased channel sales to 55% of the company's revenue in 2010. The company experienced healthy revenue growth in 2010 and increased its penetration in the life science vertical industry.

Cautions

- Panasas' ActiveStor has very low presence in the broader, horizontal storage market. The company has not partnered with major horizontal application vendors, such as VMware or Oracle.
- As Panasas focuses on the HPC environment, its ActiveStor is rarely used in the Windows environment as a general-purpose enterprise NAS system for Windows file server consolidation.
- Some customers expressed their need for a more efficient backup tool for their bulk data.

Pillar Data Systems

Strengths

- The Pillar Data Axiom innovative architecture provides sufficient capacity, performance, features/functions and file-size scalability to be deployed as an appropriate solution for server/desktop virtualization and storage consolidation projects that involve applications requiring multiprotocol file-access and block-access functionality.
- Users comment favorably about the simplicity of the Axiom user interface; the robustness of the Axiom One Storage Manager policy-based provisioning capabilities; the ease of system expansion; and Pillar Data's policy of no additional license fees on Quality of Service (QoS) software when users scale up, all of which contribute to optimizing total cost of ownership.
- Customer references and end-user inquiries support the position that Pillar Data has gained a reputation for providing responsive and knowledgeable presale and postsale customer technical service and support.

Cautions

- Pillar Data is a privately held company, and the absence of financial transparency, as well as limited brand recognition in the file-access NAS market, represents business risks that users should consider when evaluating the Pillar Data Axiom system.
- The Pillar Data Axiom product attractiveness in the file-access NAS market would be strengthened with the addition of controller-based in-line data deduplication and compression functionality, remote synchronous replication, automated data tiering capability, Microsoft SMB 2.x support and RAID 6.
- While minor upgrades are nondisruptive (soft boot in sequence), major version upgrades require reboot.

Scale Computing

Scale Computing is a storage company based in Indianapolis, Indiana. Its scale-out unified storage leverages a simplified IBM GPFS to mainly target the SMB market, offering CIFS, NFS and iSCSI access to the same storage pool. In 2010, it gained market traction with over 150 additional channel partners and 250 additional customers (a few large accounts with hundreds of terabytes of storage installed), the majority of which are in North America, with limited presence in Europe and Japan.

Strengths

- Scale Computing was able to create a simplified scale-out file system for the SMB market out of a highly scalable but complex file system from IBM, providing a sorely needed scale-out unified storage solution for this market.
- Scale Computing's storage clusters offer high availability, automated capacity load balancing, ease of management and a path of "pay as you grow." All storage software, such as snapshot and remote replication, is included in the system package with very aggressive pricing for both initial system purchase and maintenance.
- Its sales momentum visibly increased in 2010, driven by SMBs' adoption of server/desktop virtualization and consolidation of direct-attached storage.

Cautions

- The file system design gain of simplicity is at the cost of large-scale scalability. As the cluster size increases beyond the practical maximum of 30 nodes per cluster, the possibility of multiple concurrent failure increases, requiring more frequent background rebuilding and data movement processes. The most frequent implementations today are between three and six nodes per cluster.
- The application-aware aspect of its remote replication is still a work in progress, and the unified storage solution has not been certified with Microsoft HyperV.
- Although the company has added its own intellectual property around cluster management, it depends on IBM for core file system capabilities.

Symantec/Huawei Symantec

Huawei Symantec is a joint venture between Huawei and Symantec headquartered in China. It is grouped together with Symantec and evaluated as one entity in this Magic Quadrant, not only because of their tight financial ties, but also because they are offering exactly the same NAS solution with the same model name — N8000/N8300 series. Symantec provides the NAS software (also sold as the FileStore software-only solution), while Huawei provides the hardware systems. The two companies also collaborate frequently in their marketing and sales strategies to ensure sales alignment. Symantec's FileStore and the N8300 are available in North America, Western Europe and the Middle East, while Huawei Symantec's N8000 series are available in Asia, Eastern Europe, the Middle East, Africa and Latin America. The FileStore technology and N 8000 systems offer a scale-out architecture by using Veritas Storage Foundation technologies, such as Cluster File System, to group two to 16 nodes into one storage pool with a single namespace, supporting petabytes of storage.

Strengths

- As a newcomer to the enterprise NAS market, Symantec/Huawei Symantec offers a scalable NAS solution that leverages mature Symantec technologies, such as Veritas

Storage Foundation, integrated NetBackup client for faster backup than NDMP, native operation of Symantec Anti-Virus, and integration with Enterprise Vault — the leading e-mail archiving solution in the market. Other notable features include automated capacity load balancing, fast node failover within a cluster, and policy-based storage tiering within a cluster.

- Huawei Symantec was able to leverage its presence in the telecommunications arena to achieve initial success with the N8000 in China and a few emerging countries. The solution has been implemented by several large service providers as the storage infrastructure of their Internet-based services and cloud services.
- The FileStore software solution is hardware-agnostic and has the potential of disrupting the market with an aggressive price-to-performance ratio. By offering both software and turnkey solutions, Symantec provides customers with flexibility in choices.

Cautions

- Although FileStore and the N8000 series leverage mature technologies from Symantec's Storage Foundation, they lack a few important enterprise features, such as thin provisioning, deduplication/compression and synchronous remote replication. With no block protocol support, they are not as flexible as unified storage in terms of application support.
- The products also lag in ISV support for VMware, Oracle and Windows platforms, as many aspects of such support are still works in progress. The SAMBA implementation for the CIFS environment may present some compatibility issues with the latest Windows environment.
- By offering the N8300 turnkey solution, Symantec faces the challenge of managing sales alignment with Huawei/Symantec and Fujitsu. Splitting geographic coverage between Symantec and Huawei Symantec could handicap sales to large international companies operating across geographies.

RECOMMENDED READING

Some documents may not be available as part of your current Gartner subscription.

"Magic Quadrants and MarketScopes: How Gartner Evaluates Vendors Within a Market"

"EMC's Acquisition of Isilon Will Significantly Strengthen EMC's NAS Portfolio"

"Case Study: Public Library Modernized Storage Infrastructure With Scale-Out NAS"

"Vendor Rating: Symantec"

"Vendor Focus for Symantec: Storage and Server Management Offerings"

"Emerging Technology Analysis: pNFS, Storage Hardware Technologies"

"Dataquest Insight: Vertical Market Opportunities for High-Bandwidth Storage, 2010 Update"

"Solve Operational Challenges Before Merging IP and Storage Networks"

"IT Market Clock for Storage, 2010"

Acronym Key and Glossary Terms

CIFS	Common Internet File System
GPFS	General Parallel File System
GUI	graphical user interface
HNAS	Hitachi High-Performance NAS
HPC	high-performance computing
I/O	input/output
ICOS	Intelligent Clustered Operating System
IOPS	input/output operations per second
iSCSI	Internet Small Computer System Interface
ISV	independent software vendor
NAS	network-attached storage
NDMP	Network Data Management Protocol
NFS	Network File System
OS	operating system
QoS	Quality of Service
RAID	redundant array of independent disks
SAN	storage area network
SATA	Serial Advanced Technology Attachment
SMB	small and midsize business
SoFS	scale-out file services
SONAS	Scale Out Network Attached Storage

Vendors Added or Dropped

We review and adjust our inclusion criteria for Magic Quadrants and MarketScopes as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant or MarketScope may change over time. A vendor appearing in a Magic Quadrant or MarketScope one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. This may be a reflection of a change in the market and, therefore, changed evaluation criteria, or a change of focus by a vendor.

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor that compete in/serve the defined market. This includes current product/service capabilities, quality, feature sets and skills, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability (Business Unit, Financial, Strategy, Organization): Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support and the overall effectiveness of the sales channel.

Market Responsiveness and Track Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word-of-mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.

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