Vendor Rating: Hitachi and HDS’s Enterprise Storage Lines

Hitachi Data Systems’ high-end Hitachi storage products sell well, but it is struggling to find a partner to distribute its midrange disk array. It must find one, and improve its software and professional services.

Hitachi Data Systems Overall Rating: Promising

What You Need to Know: Hitachi revised its disk storage and software offerings in March 2000, and introduced the Lightning 9900 series in June 2000. Since then, Hitachi, its sales subsidiary Hitachi Data Systems, and major partners Hewlett-Packard and Sun Microsystems have successfully positioned the Lightning offering as an architecturally advanced storage system delivering unsurpassed data availability and scalability. The Thunder 9500V will probably not gain significant market share until Hitachi establishes original equipment manufacturer relationships with one or more server vendors. The lack of channels for effective 9500 distribution and a weakness in software and professional services lowers our overall rating of HDS to “promising.”

Analyst Comments: In this vendor rating, Gartner uses HDS as a proxy for the divisions of Hitachi that compete directly with other enterprise disk array vendors. The hard disk drive (HDD) and DVD storage businesses are not included.

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Corporate Viability: Hitachi was founded in 1910. Its core fields are information systems services and social infrastructure systems. These fields make good use of Hitachi’s information technologies and knowledge, and they have the right hardware, software, and highly functional materials and components to support them. The company has about 340,000 employees and reported $68 billion in revenue in FY03. It invested more than $3 billion in R&D in FY02 — at least 30 percent of this was allocated to its Information & Telecommunications Systems (I&TS) division. The company has over $7 billion in cash and is ranked 26th on the 2003 Fortune Global 500 list.

Hitachi returned to profitability in FY03 after reporting a loss in FY02. Although there was some talk about spinning off the storage business into a separate company under the HDS name, that direction has changed. Hitachi’s focus on storage as a strategic business area ensures that it will continue to control that business from Japan. Between FY03 and FY05 it will be investing at least $800 million in storage management software and hardware R&D, with more than half being allocated to software.

Hitachi has at least 800 engineers working on storage software development projects like program products and storage management. It plans to expand this number to 1,000. Hitachi’s software division holds patents to JP1, the leading system management software offering in Japan, and many engineers are being transferred from this division. They will work on taking programs used in system management and reusing them for storage management.

Storage Strategy — “promising”

As part of Hitachi’s storage marketing strategy, HDS has 2,700 employees in 60 countries working to expand Hitachi’s sales outside Japan. With at least 200 value-added resellers (VARs), and working relationships with Hewlett-Packard (HP) and Sun Microsystems, Hitachi’s reach in storage has expanded to 170 countries. This strategy has enabled Hitachi to win business with more than half of the Fortune 100 corporations.

The storage environment in Japan is different to that of the United States and Europe. There is less focus on networked storage and software tools based on graphical user interface (GUI) in Japan. Hitachi would be a Japanese-only storage vendor if it did not have the support of HDS and the additional tools and marketing programs needed to address the market outside Japan. It would not have the revenue and economies of scale that playing in the broader market provides.

HDS’s support in Europe and North America has helped Hitachi technology to gain visibility and a share of the market with U.S.-headquartered EMC, IBM and Storage Technology. Strategic relationships with HP and Sun have been particularly effective in gaining share from EMC in the HP-UX and Solaris markets.

HDS aims to be a leading supplier of disk array storage systems in a variety of environments. Its sales strategy is to sell directly to large users and via partners and distributors to the rest. Strategic reselling agreements with HP and Sun — signed by Hitachi, but managed by HDS — have proved especially successful.

HDS targets the high-end enterprise and midrange enterprise storage markets. It offers the Lightning 9900V series and the Thunder 9500V series, two product families of Freedom Storage arrays, along with added-value software.
A relationship with Network Appliance, announced in early 2003, is filling the gaps in its Network Attached Storage (NAS) offering. HDS is continuing to upgrade its software and services, although software remains its weakest area.

**Financials — “positive”**

The I&TS division accounted for 23 percent of Hitachi’s total revenue for the fiscal year ending March 2003 (FY02). It has been profitable for the past three years and has reported small growth in each of the past two years. Also in FY03, the Hitachi SAN/NAS Storage Solutions business accounted for about $2.25 billion. Hardware sales accounted for 80 percent, software for 10 percent and services for 10 percent. This revenue made up 14.24 percent of the IS&T division revenue, which was $15.8 billion or 3.3 percent of Hitachi’s total revenue of $68.3 billion. Hitachi would like to see software and services increase to 40 percent of total storage revenue by FY05 (ending March 2006).

There has been strong progress in capturing market share in the fabric-attached storage space over the past three calendar years. Market share increased from 2.6 percent in 2000 to 9.2 percent in 2002, while revenue grew 106 percent. This growth momentum may be slowed by EMC’s successful launch of the Symmetrix DMX series. Similar gains by Hitachi have been made in storage software, where market share grew from 1.3 percent to 4.5 percent, and revenue at 79 percent.

**Marketing and Sales — “caution”**

Marketing is traditionally the “Achilles heel” of HDS. Compared with many other storage companies, HDS underinvests in marketing and sales. It frequently has problems in creating and delivering messages to its end users and prospects. HDS has unique products in the market with the ability to ensure data consistency in asynchronous remote copy for mainframes, Unix and Windows platforms, as well as the Nanocopy feature for mainframe replication. But HDS has not been able to use these features as marketing levers.

HDS has made progress in marketing its 9500V arrays, but is finding it hard to convince Hitachi in Japan, which is used to a technical sell. Investing in marketing at the same level as IBM and EMC continues to be a challenge.

**Organization — “promising”**

Hitachi reports revenue by seven business segments. The I&TS division encompasses server businesses for networking, mainframe, PC and distributed systems. It also includes storage hardware and software, storage area networking (SAN) solutions and hard disk drive engineering divisions.

There are two distinct organizations that focus on storage within Hitachi’s I&TS Division: Hitachi Global Storage Technologies sells hard disk drives and Hitachi SAN/NAS Storage Solutions Business, which includes HDS, sells enterprise-class disk arrays and associated software and services. DVD-based storage products are included in another business segment called the Digital Media & Consumer Products Business Segment.

Hitachi Data Systems (HDS) was formed in 1989 when Hitachi took over National Advanced Systems. It markets, sells and services Hitachi storage arrays and software products outside Japan. HDS adds marketing and engineering value to support its market space, but the core hardware and software technology comes from Hitachi. In rating HDS, Gartner is actually rating a subset of Hitachi and its overall storage business.
HDS provides Hitachi with its market requirements. That is, it sells directly into the mainframe and open systems markets, and is Hitachi’s distributor for master disk arrays. HDS provides sales and support assistance to HP, Sun and other VARs selling Hitachi-built storage systems.

HDS was selling disk arrays until March 2000, but mainly focused on delivering IBM plug-compatible mainframes. The retreat from selling mainframes had a major effect on company results and forced it to restructure and reduce its workforce.

Its metamorphosis to a storage company has been fast and effective, with recent organizational investments focusing on improving the software side of the business. HDS has been able to broaden its geographic reach and open systems platform penetration by taking advantage of the market presence of its major partners, HP and Sun.

Comparex, a Hitachi storage original equipment manufacturer (OEM) partner, abandoned Hitachi for EMC in 2000. But, HDS quickly built its own organization in the countries where Comparex was active and was able to retain the majority of the Comparex customer base.

Market Offerings: Product/Services/Technologies

HDS was the first vendor to effectively challenge EMC in the high-end, enterprise disk array market, but, until mid 2000, its market share was too small for it to be a real challenger. Since then, disk arrays based on Hitachi technology have increased market share significantly. Powerful partnerships and delivered features have justified HDS’s position as one of the leaders in the disk storage solutions market. It is positioned in the “Leaders” quartile in two Magic Quadrants (high-end enterprise and midrange enterprise disk arrays) and as a “Challenger” in two other Magic Quadrants (SAN integration and storage services), which Gartner has published in 2003. In storage management software, Hitachi/HDS has vision and substantial investments in R&D, but it remains to be seen if the company will be able to convert them into market success.

Despite its remarkable success in selling high-end storage, HDS remains oriented around a single product and lacks the breadth of other storage vendors. But, Hitachi has extensive resources, which ensure solid viability and stability for its storage business, and for HDS.

HDS does not sell its own tapes or tape-related products like libraries or virtual tape. It partners with Sony, StorageTek and ADIC to meet customers’ requirements for tape library systems. These systems are usually sold by HDS as part of an overall solutions bundle, but such deals are rare. The company resells host bus adapters (HBAs) and storage networking switches from all the leading SAN hardware vendors.

HDS’s initial NAS strategy was based on Network Security Services (NSS) as the NAS gateway was not successful. HDS began offering a different NAS gateway through an OEM agreement with Network Appliance in April 2003. The co-branded product is offered solely by HDS.

The GF940 and GF960 series — which correspond to NetApp’s FAS 900 series — scale to 48TB of storage capacity and are attached to the Hitachi Freedom Storage Lightning 9900V series arrays. The gateways can be “direct-attached” or “fabric-attached” through a Fibre Channel (FC) switch to HDS Lightning. A midrange version, the GF825, can scale to 6TB and attach to the Thunder 9500V series. A common storage management system controls the file and the block portions of the subsystems. Another possibility for NAS is NAS blades, which costs less and has fewer external connections. This should be launched at the end of 2003 (0.8 probability).
High-End Enterprise Disk Arrays: Lightning 99XXV — “strong positive”

HDS was one of the first to ship a competitive, multi-platform connectivity solution for use in heterogeneous mainframe and open systems environments. But it was unable to penetrate effectively the high-end Unix and Windows markets, until its OEM agreement with HP. Since introducing its Lightning 9900 series in June 2000, Hitachi and its partners have successfully positioned the Lightning offering as an architecturally advanced storage system. The Lightning products deliver competitive data availability and scalability for the mainframe and open systems markets.

HDS announced two new high-end storage subsystems, the multi-cabinet 150TB 9980V and the single-cabinet 9970V in May 2002. Partners HP and Sun announced these products at the same time as the HP SureStore XP1024/XP128 and Sun StorEdge 9980/9970.

The Hi-Star architecture in the 9960 captured the market’s attention by pushing the internal bandwidth capacity to 6.4GB per second. The V series delivered up to 15.9GB of internal bandwidth. The 9980V increased Hitachi’s technology leadership even further, until EMC announced the Symmetrix DMX series in February 2003.

The majority of Geographically Dispersed Parallel Sysplex (GDPS) installations are using Hitachi disk arrays.

Midrange Enterprise Disk Arrays: Thunder 95XXV — “promising”

The Thunder 9500V storage system was announced in December 2002. Hitachi has incorporated several features into its midrange enterprise disk array, such as FlashAccess and virtual ports, which were available previously only on large Hitachi subsystems. The Thunder 9500V availability, scalability, throughput and performance position it as an able competitor to EMC’s CX600, HP’s EVA, Logic Storage Systems’ E5600, IBM’s FASTT and StorageTek’s D-series.

Data Replication Products — “strong positive”

HDS’s software strength lies in its data replication products. The Lightning series provides the most comprehensive, remote, data-replication techniques of any storage product family. It supports Hitachi’s own synchronous and asynchronous remote copy technology, as well as the IBM-compatible Peer-to-Peer Copy (PPRC) and mainframe-based Extended Remote Copy (XRC).

Storage Management Software — “strong negative”

HDS remains a minor player in the storage software market segment, with less than 5 percent market share. This is despite growth in storage management revenue during the past two years. The company intends to provide solutions to meet broader management requirements.

The HiCommand management framework and product suite provides a common point of policy-based management for Hitachi and Sun’s hardware storage products. TrueNorth is Hitachi’s “vision” for addressing open and serviceable, storage management solutions. This new direction includes expanding the capabilities of HiCommand software to integrate with the virtualization assist layer of the Hitachi and Sun products.

HiCommand will incorporate a messaging bus based on Common Information Model (CIM) and Simple Object Access Protocol (SOAP). Hitachi has presented CIM/SOAP as a standards-based method to the
Distributed Management Task Force (DMTF). The idea is that this will enable modules developed by Hitachi, its partners and independent software or hardware vendors to have a “plug and play” capability.

TrueNorth includes a collaborative business model that is intended to gain ISV participation and support of ISV open frameworks. Hitachi’s software vision appears well designed, but TrueNorth and HiCommand will give value only after products have been delivered and marketed. HDS has made the application programming interface (API) to its HiCommand array available to partners, but has not done the same with the API to its HiCommand messaging bus. It has released only one value-added product since the announcement of TrueNorth, the HiCommand Tuning Manager. There are no dates for delivering any new components or for integrating replication software into the new design. Any customer management support beyond basic array management will be left for third parties to solve.

Hitachi plans to invest $500 million in R&D for storage management software over the next three years. Software remains a weak link, which will leave it trailing the market. But HDS has shown no willingness to fill gaps by acquiring other companies.

HDS’s ability to win partnerships in the software space has been disappointing and the company continues to jump from one partner to the next, with little success. The result is that customers cannot trust HDS to guide their software strategy. The current partnership direction appears to conflict with HDS’s claim that it is going to develop its own products and eliminate the need for partners. Its data replication software should be viewed as a “strong positive,” while the rest of its storage management should be viewed as “negative.”

**Storage Professional Services — “caution”**

HDS’s service focus was on product support until recently. An agreement with Sun to resell high-end HDS arrays opened the door to a great many service opportunities to build and implement SANs in Sun environments. Sun has been building its service capabilities in these areas.

In 2002, HDS hired Ken Beaudry, now senior vice president and general manager of HDS Global Solution Services Group, to develop and deploy heterogeneous consulting, implementation and support capabilities. The aim was to deliver these programs directly and through channel partners. But, they are still in development and have yet to be formally announced. Professional services will focus initially on HDS platforms.

**Technology — “positive”**

Hitachi manufactures HDS products and is one of the world’s largest integrated electronics companies. It produces more than 20,000 products, from semiconductors to bullet trains. The storage subsystems development unit creates state-of-the-art products and is known as the Hitachi Disk Array Systems Division. Many application-specific integrated circuits (ASICs) and large-scale integrations (LSIs) are designed as electronic components in its storage control units. Hitachi believes that incorporating this technology into its products gives greater performance and functionality than competitors that have integrated, off-the-shelf, general purpose ASICs.

Hitachi has been able to leverage R&D across multiple divisions. For example, the Lightning 9900V Hi-Star crossbar, switch-based architecture was co-developed by engineers from its supercomputer, networking and data storage research divisions.
Hitachi established Hitachi Global Storage Technologies, which comprises the HDD operations of Hitachi and IBM in 2002. The new unit is the third biggest in the market, with more than $4 billion in revenue. It holds at least 3,200 patents — double that of its nearest competitor, Seagate.

Having subsystems and HDD developments in the same corporation promises continued advances in technology. Hitachi’s weakness rests in its software solutions, which are based on the requirements of the Japanese market. Software is still very direct-attached and focuses on Command-Line Interface (CLI). This has prevented the speedy development of software needed for a wider market.

**Pricing — “promising”**

Between mid-2001 and mid-2003, HDS high-end products tended to cost more than those of EMC, IBM and StorageTek. EMC is frequently the high bidder in North American deals since its launch of the Symmetrix DMX series. Only the Lightning-based products of Hitachi’s partners were more expensive, especially in Europe, the Middle East and Africa (EMEA). But HDS’s prices now tend to be the more competitive. Larger customers can benefit from price consistency on most quotations and possible reductions of up to 20 percent or more after skillful negotiations. The custom of giving away software to sell the hardware is slowly being replaced as the company gets better at selling the value of its software.

**Customer Service/Support: Sales and Distribution — “positive”**

HDS has been effective in approaching different markets through different channels. In Japan, it has penetrated successfully into the storage market through direct sales. The OEM relationship with HP and the reselling relationship with Sun have increased dramatically the presence of Hitachi Lightning technology into the high-end Unix market. HDS fills the gaps by focusing on mainframe, Windows and other Unix platforms. HDS sells the Thunder arrays directly and through an effective VAR channel. Aggressive marketing of its Thunder arrays is problematic, since HP and Sun have competitive products that could lead to account control conflicts with HDS’s strategic partners.

**Support and Account Management — “promising”**

HDS customer service has a strong reputation for technical competence, which is highly appreciated by HDS customers, especially in EMEA. But, its geographic coverage is still more limited than its key competitors. Existing customers report high satisfaction with HDS service and arrays that rarely need repair.

**Related Research and Ratings:** “Magic Quadrant for High-End Enterprise Disk Array, 1H03”

“Magic Quadrant for Midrange Enterprise Disk Arrays, 1H03”

“Magic Quadrant for SAN Integrated Solution, 1H03”

“Storage Services Magic Quadrant”

“Hitachi’s Thunder 9500 V Needs the Boost of an OEM Deal”

“Hitachi’s 9900 V Series: The Lightning Strikes Again”

“Viable Techniques for Asynchronous Remote Copy”
**Rating Definition:**

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| Strong Positive | Solid provider of strategic products, services or solutions.  
• Customers: Continue investments.  
• Potential customers: Consider this vendor a strong strategic choice. |
| Positive         | Demonstrates strength in specific areas, but is largely opportunistic.  
• Customers: Continue incremental investments.  
• Potential customers: Put this vendor on a short list of tactical alternatives. |
| Promising        | Shows potential in specific areas; however, initiative or vendor has not fully evolved or matured.  
• Customers: Watch for a change in status and consider scenarios for short- and long-term impact.  
• Potential customers: Plan for and be aware of issues and opportunities related to the evolution and maturity of this initiative or vendor. |
| Caution          | Faces challenges in one or more areas.  
• Customers: Understand challenges in relevant areas; assess short and long term benefit/risk to determine if contingency plans are needed.  
• Potential customers: Note the vendor’s challenges as part of due diligence. |
| Strong Negative  | Difficulty responding to problems in multiple areas.  
• Customers: Exit immediately.  
• Potential customers: Consider this vendor only if there are no alternatives. |

**Core Topic**
Storage Systems ~ Hardware Platforms

**Hitachi Data Systems**
Headquarters: Santa Clara, California
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