

# Storage Intelligence Journal

## Business Analysis for Executives and Investors

**2003 SPECIAL ISSUE**

An Engage Research Publication  
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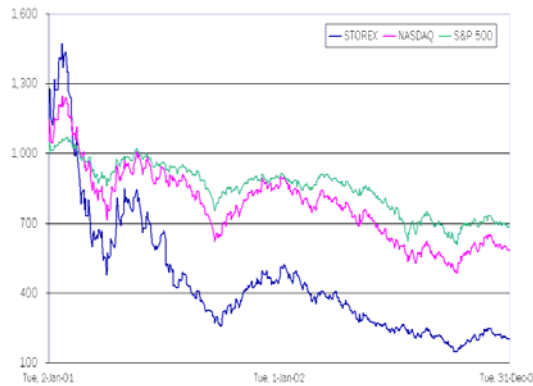
Subscription—\$795/year

**Special points of interest:**

- STOREX finished the year off 54%, while NASDAQ and the S&P 500 closed 31.5% and 23.4% lower, respectively.
- In the fourth quarter, the STOREX gained 22.9%, beating both NASDAQ and the S&P 500. Those indices closed up 13.9% and 7.9%, respectively.
- Seagate (STX - NYSE) is the newest member in the STOREX following the beginning of trading on December 11.

**Cumulative STOREX vs NASDAQ and S&P 500**

1/5/01 = \$1000, Market Cap Weighted



**5-Week STOREX vs NASDAQ and S&P 500**

10/24/02 = \$1000, Market Cap Weighted



### The Year in Storage. The Year Ahead.

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**STOREX**

In 2002, the STOREX underperformed our key benchmark indices. STOREX lost 54%, while NASDAQ and the S&P 500 dropped by 31.5% and 23.4%, respectively. At least in 2002, the markets efficiently punished those who underperformed and the storage industry quickly made that list.

There are now just two names in the large cap category of the STOREX; **EMC**, and **Veritas**. 2002 was the year that **Brocade** went from a large capitalized company with a market value of greater than \$5 billion to a small cap firm with a market value under \$1 billion. Brocade was the second worst performer in the STOREX during 2002, trailing only **Read**

**Rite**. At its peak, Brocade was worth \$26 billion.

STOREX market cap leader **EMC** plummeted from a market value of \$24 billion in January to just under \$8 billion by the end of year, but was not even in the Top 10 of poorest performers. In January of 2001, EMC was worth a whopping \$176 billion.

As evidence of the decline in storage firms' value, the entire STOREX now has a market capitalization of just \$44 billion, one quarter of EMC's value at the peak. The STOREX once had a peak value of \$315 billion, but is now climbing back from the trough of \$31 billion in October 2002. Indeed, the STOREX outperformed both NASDAQ and the S&P 500 during the fourth quarter of the year.

**Adaptec**, **McData**, and **Quantum** have all dropped out of the mid-cap (\$1 billion to \$5 billion in revenue) category into the growing list of small cap STOREX firms. Meanwhile, **Seagate** moved into the mid-cap category with its December IPO.

By market segment, it paid to be in devices during 2002, particularly hard disk drives. **Innovex**, **Komag**, and **Western Digital** were three of only six STOREX names that managed to trade up during the year. There are 28 firms listed in the STOREX. The device group managed to outperform both the NASDAQ and S&P 500, losing just 20.4% during 2002.

Systems and services did slightly better than the STOREX overall, but not much. With a 50.4% loss during 2002, investors still didn't

## Letter from the Editor



We launched the *Storage Intelligence Journal* in April 2002, shortly after starting up the research division of Engage Capital. SIJ was started with all the optimism and enthusiasm one could possibly have for an industry. We are proud to have great subscribers who have patiently waited for us to get our act together in publishing, while at the same time contributing ideas and criticism to make this a better forum. To our loyal customers, we know that we've fallen short of our goal of publishing every other week, but rather than put out weak analysis, we would rather add to the back end of your subscriptions. Fear not. We will only hit you up for a renewal when you've gotten a full year's worth of work on our part.

If there was ever any concern about the independence of our analysis, we hope that has been put to bed. Our vision of publishing on the industry and avoiding the bias that analysts feel when defending their stock picks should be crystal clear with more a dozen issues of SIJ out in 2002. Increasingly, Wall Street is moving towards the acceptance of more independent research, and we hope to broaden our audience on the Street this year.

This is not a stock picker's newsletter, but after one of the most dramatic plunges in the history of the market, and with the relentless pounding in the market mid-year, I couldn't help but comment. The S&P 500 lost 34% in a year's time and 13% in two weeks with no apparent end in sight. I just couldn't resist taking a stab at the market bottom. On July 22 (SIJ Volume 1, Issue 6) I said we were within weeks of a market bottom and I was right. Not right as in, "how do I spin this story" right, but right as in right. In that article, I said companies would take rapid action to restore investor confidence, and the market's discounting mechanism would incorporate this into valuations soon. I still believe we have seen the worst of it, but that doesn't mean we will return to the sustained stock performance seen in the late 1990's any time soon. For what it's worth, I'm diversifying into firms that are well-positioned for the next megatrends, including the aging and the growing minority populations in the US.

SIJ is not a stock picker's newsletter, but institutional investors and company executives should benefit from reading regularly, if only to grab one meaningful nugget per year. We try to minimize the press release stories and executive promotions and departures that are found in the trade rags. Instead, we continue to refine our writings to take a more analytical view of the industry, and present opinions that are actionable either by agreeing or disagreeing with our thoughts. Nobody can get every call right, but we recognize the need to be more right than wrong.

As we move into 2003, we are beginning the year with a review of the past, and are starting in on the coming year outlook. We are enthusiastic about the selling environment in a new business cycle, but remain cautious on an over-funded start-up crowd and the coming commoditization of storage hardware. In this decade, IT managers will begin buying storage hardware like they buy PCs and servers today. If 2003 and 2004 are spent seeding the market with new technologies, it won't be long after that before the real commoditization trend happens. We think the success of heterogeneous storage vendors will drive the incumbents to a closer customer/supplier relationship through utility computing. We don't think this defense to the start-up crowd is well understood by executives building for a new business, but still planing on using yesterday's sales models. We'll talk more about this through the year.

The over-funded sector issue can only be resolved by consolidation. The incumbents are taking the lead in that consolidation now, but we expect that it won't be long before a second-tier technology company decides to attempt a roll-up that generates interest from industry watchers. We would guess that it will take a billion dollars and a lot of blood to buy the technologies, channels, and customers along the way. Even with consolidation, a few storage firms will find an IPO window, but doubtfully this year. Thus, it will be important for firms to keep some powder dry for a 18-24 month period. That's forever in technology, and a difficult task when 2003 is also the year that companies will need to begin selling product.

We look forward to the coming year and hope to meet with all of our readers to hear your perspective. As always, please feel free to call or write if you've got a story worth listening to or simply want to chat about a subject. Happy New Year!

David Takata

Editor-in-Chief

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## The Year in Storage. The Year Ahead. (Continued from Page 1)

feel much better unless they had their picks right. **Dot Hill**, **StorageTek**, and **Vixel** were the only companies in this segment that managed to keep their stock prices in positive territory. Dot Hill took the honors for the year, with a 84.5% gain in stock price. StorageTek led all STOREX firms in the fourth quarter with a 104% gain in stock price.

The worst performing segment was in software, with the group off 64.6% during 2002. **Veritas** accounted for the majority of the loss, with the company value off 65.2% during Gary Bloom's second full year as CEO. While software underperformed all segments for the full year, **Legato** stood out as the third biggest gainer in stock price during the fourth quarter.

### Economic Conditions

Storage firms entered the year praying for a return to the 1990's IT spending levels, but with talk of a double-dip recession, and the equity markets closed for new offerings, storage firms went into hunker down mode by mid-year. Closures and RIFs occurred in every segment of the storage industry, from components to systems, services, and software. **EMC** alone let 1,350 employees go in the fourth quarter.

In November, **IDC** said storage spending would end 2002 lower by at least 10%, which follows the 20% haircut seen in 2001. The 10% decrease in sales differs considerably from the 2.3% decrease in IT spending forecast by IDC, and the 2.3% positive increase in US GDP growth forecasted by the Organization for Economic Cooperation and Development (OECD) during 2002.

Again, the underperformance of the STOREX for the year demonstrates that investors incorporated the relative performance of this sector to the larger IT sector and global economy in its entirety. However, the end of year STOREX performance may signal a change in investor sentiment. If the new era of storage technologies does signal a massive replacement opportunity during the next business cycle, then stocks will begin to reflect this opportunity as the global economy improves.

The key to the global economy and STOREX member revenue generation is still the US. We are

reminded that the US, with just 4.65% of the world's population, accounts for 32.9% of the global GDP. Japan, with just 2.09% of the world's population, accounts for another 13.4%. Combined, the US and Japan measure nearly half of the global GDP.

Japan remains in a deflationary funk, and both the US and Japan have just about exhausted their monetary policy options for economic stimulus. With a Republican led administration and Congress, we expect a major US fiscal policy emphasis in 2003. With low interest rates and some incentives for businesses to begin making capital improvements, our outlook for storage opportunities is modestly improving. We think the outlook will be significantly improved by mid-

year, a far cry from our dour outlook at the same point last year.

Storage firms closed the year hopeful that 2003 would look better than 2002. The fact that the largest technology IPO of the year was a storage company, **Seagate**, should also give storage investors some hope for a better 2003. Furthermore, Seagate's announcement of a dividend following the IPO should make one even more hopeful, given that many well-established "old economy" firms have been pulling back dividends during the downturn.

The relative safety of investors

*"...we have long advocated the value of technology firms paying dividends, even if the dividend is relatively low. The discipline required for a dividend program really forces firms to focus."*

hiding in large cap names has now been broken by recent negative announcements from gold standard names like **Home Depot** and **Wal Mart**. If other storage companies begin to show the confidence of Seagate, there may be good reason for maintaining a

positive bias in the STOREX.

As a side note, we have long advocated the value of technology firms paying dividends, even if the dividend is relatively low. The discipline required for a dividend program really forces firms to focus. **Procter and Gamble** could just as easily argue that it needs to invest in new products and seed its markets, but the company pays a dividend that investors appreciate.

### Incumbents in Control?

The wealth of the STOREX is now spread more evenly than at the peak. While **EMC** once accounted for 60% of the total value of the STOREX, the company ended the year at 31% of the total value. Still significant, but a realization by investors that this industry will not be dominated by a single vendor.

IDC's disk storage systems market share report up to the third quarter of 2002 showed the merged **HP** and **Compaq** with a commanding 27% share — more than double **EMC's** share of 11%. In fact, both the new **HP** and **IBM** gained market share points on **EMC** during the third quarter, despite **EMC's** refresh of the Symmetrix 8000 in Q2. Analysts appear to be waiting for a more complete overhaul, Sym 6, to get **EMC's** speeds and feeds more competitive with Hitachi.

In software, **Veritas** remains the 800 pound independent gorilla, but credible alternatives are now emerging. Previously, Wall Street had looked to **Legato** to step up as competition, but the slew of storage resource management (SRM) vendors have given pause to that thinking.

**Computer Associates** appears to have lost all momentum with the recent investigations by the SEC and subsequent resignation of leadership by **Charles Wang**. Meanwhile, **IBM** appears to be strengthening its middleware approach, building on Tivoli as an anchor. The company's August acquisition of **TrelliSoft** underscores **IBM's** dedication to filling out the software elements in storage. **EMC** also continues to invest in software, picking up **Prisa Networks** in September. **Sun** joined in and bought **Pirus Networks** in September.

## The Year in Storage. The Year Ahead. (Continued from Page 3)

It is clear that while vendors are preaching open and interoperable systems, they would like to tightly couple software to hardware, picking up a few margin points along the way. We are reminded of one of **Larry Ellison's** axioms, though, that no great software company has ever built a solid foundation on patched together (acquired) software. Think about that for a few minutes.

Incidentally, we are resisting new storage acronyms. The latest in software, ARM, is short for automated resource management. We think this falls within the existing context of storage resource management, provisioning, and virtualization. Automating functions is an inevitability as the industry moves more and more towards a utility model.

Commoditization of storage is a big story. There is simply no way that the systems business will not get further commoditized during 2003. Every storage hardware start-up in the world has its eye on **EMC's** margins. And let's not forget about the master of commoditization, **Dell**. The software acquisitions described earlier might also be seen as an acknowledgement of the hardware pricing trend.

We have been watching **Linda Sanford** at **IBM** for quite some time, and are looking for signs of IBM turning the lights on in its utility storage business model. It is our belief that no company has the ability to be more disruptive in storage than IBM.

Whether IBM chooses to fully embrace such a dramatic change, or merely leave it as an option for customers is the big question. We think start-ups

should spend some time questioning their role in the world, if this becomes a viable customer option with the Big Iron vendors. Notably, utility storage will involve more than just selling product by the gigabyte, but should encompass software and the complete service element, as well. How does a start-up compete effectively when the rules have been changed by the incumbents?

Without doubt, the storage software technologies are maturing. The challenge for SRM vendors looking to fill Veritas' independent shoes will be lining up channels and ensuring that end-users have the opportunity to get training on this new class of product when the hardware incumbents are busy selling their own product.

Ultimately, vendors need to be more than a line item on a price list. It remains to be seen whether this breed of independents has enough pull to enter into meaningful strategic alliances.

The **Cisco** and **Veritas** agreement signed last April should be worth watching as a benchmark for creative storage relationships. Despite its reputation for an aggressive acquisition strategy, Cisco has not embraced "strategic alliances" in its culture. CEO John Chambers is hesitant to enter into such relationships unless they have hundreds of millions of dollars of implied upside for both partners during the engagement. Cisco has an

existing strategic relationship with **Microsoft**, one of the few that Chambers has said has met the company's requirements. We will be watching these three closely during the year.

In the device business, industry watchers are now becoming believers in a less volatile and more profitable disk drive industry. Despite a slow growing PC market, the Big Three, **Maxtor**, **Seagate**, and **Western Digital** managed to maintain profitability in the fourth quarter.

Following years of brutal pricing, the disk drive industry has just one US independent supplier for heads and media remaining. **Read Rite**, the head supplier, is in a precarious financial condition, with its auditor just recently publishing a "going concern" statement.

The areal density of magnetic disk dropped from the recent 100% rate seen since 1996 to somewhere in the range of 40%-50% in 2002. Disk veterans (including this author, who is on the board of directors at a disk company) say maintaining the areal density is getting tougher every year. Without the economics to justify such a pace, we are likely to see a return to a more normal 60% annual increase.

In terms of HDD products affecting the systems business, look for Serial ATA-based systems to begin hitting the market en masse in the later half of 2003. We think the market is warming up to the idea, but vendors still

have to prove reliability in an enterprise environment.

In other devices, TCP offload engines (TOEs) are one of the few devices that have entirely lived up to expectations. Still, the adoption of iSCSI, due to standards issues, has delayed any significant revenue to adapter card manufacturers.

### VC Moves to M&A?

Excluding stealth venture projects and R&D efforts within larger companies, there was at least \$250 million spent on start-ups in 2002 versus at least \$800 million in 2001. Surprisingly, first round storage venture deals are still taking place, with two companies funded in the fourth quarter of 2002.

Conventional wisdom has it that the smart VCs are looking for an exit by the time the rest of the world catches wind of a trend. But, experienced VCs, **Greylock** and **New Enterprise Associates (NEA)**, put fresh money into **Data Domain** just last October. NEA just can't seem to get enough storage - **3Ware**, **Candera**, **Creeksouth**, **DataCore**, **Data Domain**, **Decru**, **LiveVault**, **PolyServe**, **Troika Networks**, and **Zambeel** are all NEA portfolio companies.

Other obvious believers in the new storage world include **Battery**, **Goldman Sachs**, **Interwest**, **JP Morgan**, **Mellon Ventures**, **Menlo**, **Moore Capital**, **Morgan Keegan**, **Morgan Stanley**, **Sequoia**, **Trinity** and **Worldview Technology** — all having made at least two venture investments in storage during the past two years. The question is, will these VCs continue to stand by their investments until the markets permit an exit? There are many

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## The Year in Storage. The Year Ahead. (Continued from Page 4)

signs that say no, or at least not at any cost. Big box VC funded companies - the EMC attackers - are at the top of the watch lists, due to the relatively high levels of invested capital.

**Cereva** bit the dust in 2002, with EMC picking up the pieces. **3PARdata** began shipping product mid-year, but announced a 20% RIF in November. **Zambeel** continues to flog its sale of product to the Department of Energy (DOE), and is said to have laid off 25% of its staff in August.

"Stealth" start-ups have to emerge from the skunk works eventually, and one of the more interesting stories to slip out of the hanger late in the year was **Pillar Data**. Reports have it that Pillar has been sole-funded to the tune of \$100 million by **Lawrence Investments**, which is **Larry Ellison's** private investment company. If Ellison is indeed in this for the long-haul, he could afford to fund Pillar with out blinking an eye.

A number of firms made drastic changes to the business model, with the most notable group in the storage services business. Perhaps too closely tied to the Internet era, the storage service providers (SSPs) paid a heavy price. **Sanrise** was one of the more notable flops in this segment, going Chapter 11 in June after raising a total of \$203 million. **StorageWay**, after raising \$98 million, was sold for a mere

\$2 million to **Cable & Wireless** just one month after Sanrise's bankruptcy.

Other SSP firms found the huge infrastructure costs and hesitant buyers made for heavy losses that could not be supported with hesitant VC backers. With a flawed business model, several chose to turn to a software license model based on proprietary tools used in their data centers. In October, **Storage Networks** (STOR—NASDAQ) began selling its chargeback software as one such tool.

Strategic investments by leading storage firms have now turned into strategic acquisitions. The tables have now turned and the incumbents have the luxury of time to wait for the start-ups to exhaust their capital in R&D. With good timing, an incumbent not only offloads the R&D expense to another company, but gets a near market-ready product to fill the channels.

**EMC, Sun, and Veritas** led the fourth quarter acquisition activities, snapping up **Jereva, Pirus Networks, Precise Software, Prisa Networks, Sanrise, and Terraspring**.

Sun may be the most perplexing of the bunch. They were arguably very early in the identification of storage as a major market worth investing in, but have flailed along for years now. Sun earlier had acquired **Encore, High-Ground Systems, LSC Software, MaxStrat** and **Red Cape**, but the company has failed to significantly capture mindshare or market share beyond the UNIX

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attached business. And while CEO **Scott McNealy** has been quoted as saying, "we don't take commissions on someone else's R&D" the company continues to sell an OEM version of the **Hitachi** Lightening box.

**Brocade** also stepped in with its **Rhapsody Networks** acquisition, which we think has diluted, rather than enhanced the company's story. Brocade's CEO, Greg Reyes, was always a bit like President Bush in that you were either with him or against him in his vision for a storage network fabric. Now, the company is suddenly turning multi-protocol and application aware.

The biggest venture story was in **Cisco's** August acquisition of **Andiamo**, which is probably the reason Brocade felt compelled to

purchase **Rhapsody**. Cisco's charade with investors, who were demanding to know what the company was going to do in storage, was answered by a potential \$2.5 billion post-bubble valuation of **Andiamo**.

### 2003 is Execution Time

For the storage market, the late 90's were spent pitching the dream — monitoring tools, multi-protocol interoperable devices, automated provisioning systems, and virtualization platforms. In simplified terms, we might say that the first two years of the 2000's have been spent building the technology to fulfill that dream. In 2003 and beyond, firms are going to have to sell. Everybody understands this and it's now time to execute.

2003 will be the year that executives earn their salaries. We expect to hear more M&A activity, and new product introductions than ever before. Thus, management teams will be tasked with more strategic and tactical issues than ever before. The weak will be quickly left behind, and the strong, with a little luck will end the year looking like heroes.

**Happy New Year! ■**

## Storage Index (STOREX) - 2002 Performance

The STOREX is a market capitalization weighed index of public companies involved in the storage technology sector.

	<u>C4Q02</u>	<u>C3Q02</u>	<u>C4Q01</u>	<u>Q-to-Q</u>	<u>Yr-to-Yr</u>	<u>C4Q02</u>	<u>YTD (12/31/02)</u>	<u>Notes</u>
	<u>Revenue</u>	<u>Revenue</u>	<u>Revenue</u>	<u>Change</u>	<u>Change</u>	<u>Perform.</u>	<u>Perform.</u>	
<b>Device (components, HDD, HBA)</b>								
Adaptec	105,000	85,709	105,281	22.5%	-0.3%	28.1%	-61.0%	
Emulex	74,000	70,425	62,211	5.1%	19.0%	64.7%	-53.0%	
Hutchinson	132,000	109,122	92,717	21.0%	42.4%	28.2%	-10.9%	
Innovex	30,000	30,089	37,843	-0.3%	-20.7%	79.6%	24.9%	
JNI	6,500	7,107	13,485	-8.5%	-51.8%	18.4%	-66.7%	
Komag	n.a.	70,241	58,000	n.a.	n.a.	46.8%	73.2%	
Maxtor	998,000	819,716	1,079,623	21.7%	-7.6%	93.9%	-20.2%	
Qlogic	112,000	107,115	82,587	4.6%	35.6%	32.5%	-22.5%	
Quantum	209,000	204,453	283,994	2.2%	-26.4%	20.8%	-72.9%	
Read Rite	65,000	37,950	135,913	71.3%	-52.2%	-32.7%	-94.7%	
Seagate	n.a.	1,579,000	1,629,000	n.a.	n.a.	-6.5%	-6.5%	
Western Digital	626,000	582,909	574,670	7.4%	8.9%	36.0%	1.9%	
Total	2,357,500	2,054,595	2,468,324	14.7%	-4.5%	27.7%	-20.4%	
<b>Systems &amp; Services (switches, disk &amp; tape subsystems)</b>								
ADIC	86,000	84,190	96,723	2.1%	-11.1%	39.8%	-58.2%	Company on October fiscal year. Using January quarter for Q40 compas.
Brocade	123,000	153,107	123,078	-19.7%	-0.1%	-45.0%	-87.5%	Company on October fiscal year. Using January quarter for Q40 compas.
Computer Network Technology	60,000	55,903	60,665	7.3%	-1.1%	41.4%	-60.1%	Company on January fiscal year. Using January quarter for Q40 compas.
Crossroads	8,200	8,200	9,197	0.0%	-10.8%	67.2%	-78.4%	Company on October fiscal year. Using January quarter for Q40 compas.
Dot Hill	n.a.	8,584	10,500	n.a.	n.a.	24.0%	84.5%	
EMC	1,300,000	1,259,438	1,512,710	3.2%	-14.1%	34.4%	-54.3%	
Exabyte	39,000	36,904	35,706	5.7%	9.2%	-17.2%	-50.5%	
Inrange	55,000	52,913	72,526	3.9%	-24.2%	-15.8%	-81.0%	
McData	85,000	80,941	93,500	5.0%	-9.1%	30.8%	-71.0%	
Network Appliance	223,000	215,171	198,349	3.6%	12.4%	36.4%	-54.3%	Company on April fiscal year. Using January quarter for Q40 compas.
Storage Networks	17,000	22,035	31,578	-22.9%	-46.2%	-7.2%	-81.2%	
Storage Tek	553,000	501,705	566,370	10.2%	-2.4%	103.8%	3.6%	
Mixel	5,600	5,014	4,651	11.7%	20.4%	58.7%	8.1%	
Total	2,554,800	2,475,521	2,805,053	3.2%	-8.9%	37.7%	-50.3%	
<b>Software</b>								
FalconStor	n.a.	2,856	3,027	n.a.	n.a.	-20.3%	-57.2%	
Legato	74,000	68,088	62,030	8.7%	19.3%	82.9%	-61.2%	
Veritas	377,000	365,684	374,446	3.1%	0.7%	6.5%	-65.2%	
Total	451,000	433,772	436,476	4.0%	3.3%	11.9%	-64.6%	

Sources: Company Reports, Engage Research, Market Guide, Thomson Financial Network

Notes:

(1) C4Q02 mean estimate from Thomson Financial Network

(2) Does not reflect impact of companies for which C4Q02 revenue estimates are unavailable.

## Storage Index (STOREX) - 2002 Performance

The STOREX is a market capitalization weighed index of public companies involved in the storage technology sector.

	C4Q Perform.	YTD (12/31/02) Perform.		C4Q Perform.	YTD (12/31/02) Perform.
<b>Device (components, HDD, HBA)</b>			<b>Large Cap (&gt;\$5B)</b>		
Adaptec	28.1%	-61.0%	EMC	34.4%	-54.3%
Emulex	64.7%	-53.0%	Veritas	6.5%	-65.2%
Hutchinson	28.2%	-10.9%	Average	25.3%	-57.8%
Innovex	79.6%	24.9%	<b>Mid-Cap (\$1B-\$5B)</b>		
JNI	18.4%	-66.7%	Emulex	64.7%	-53.0%
Komag	46.8%	73.2%	Maxtor	93.9%	-20.2%
Maxtor	93.9%	-20.2%	Network Appliance	36.4%	-54.3%
Qlogic	32.5%	-22.5%	Qlogic	32.5%	-22.5%
Quantum	20.8%	-72.9%	Seagate	-6.5%	-6.5%
Read Rite	-32.7%	-94.7%	Storage Tek	103.8%	3.6%
Seagate	-6.5%	-6.5%	Western Digital	36.0%	1.9%
Western Digital	36.0%	1.9%	Average	39.0%	-21.9%
Average	27.7%	-20.4%	<b>Small Cap (&lt;\$1B)</b>		
<b>Systems &amp; Services (switches, disk &amp; tape subsystems)</b>			Adaptec	28.1%	-61.0%
ADIC	39.8%	-58.2%	ADIC	39.8%	-58.2%
Brocade	-45.0%	-87.5%	Brocade	-45.0%	-87.5%
Computer Network Technology	41.4%	-60.1%	Computer Network Technology	41.4%	-60.1%
Crossroads	67.2%	-78.4%	Crossroads	67.2%	-78.4%
Dot Hill	24.0%	84.5%	Dot Hill	24.0%	84.5%
EMC	34.4%	-54.3%	Exabyte	-17.2%	-50.5%
Exabyte	-17.2%	-50.5%	FalconStor	-20.3%	-57.2%
Inrange	-15.8%	-81.0%	Hutchinson	28.2%	-10.9%
McData	30.8%	-71.0%	Innovex	79.6%	24.9%
Network Appliance	36.4%	-54.3%	Inrange	-15.8%	-81.0%
Storage Networks	-7.2%	-81.2%	JNI	18.4%	-66.7%
Storage Tek	103.8%	3.6%	Komag	46.8%	73.2%
Vixel	58.7%	8.1%	Legato	82.9%	-61.2%
Average	37.7%	-50.3%	McData	30.8%	-71.0%
<b>Software</b>			Quantum	20.8%	-72.9%
FalconStor	-20.3%	-57.2%	Read Rite	-32.7%	-94.7%
Legato	82.9%	-61.2%	Storage Networks	-7.2%	-81.2%
Veritas	6.5%	-65.2%	Vixel	58.7%	8.1%
Average	11.9%	-64.6%	Average	18.7%	-58.5%

Sources: Company Reports, Engage Research, Market Guide, Thomson Financial Network

## Industry Events

Date	Event	Location	Description
1/7-8/2003	Storage Visions	Stardust Convention Center, Las Vegas, NV	Pre-CES consumer and entertainment driven storage. Second year show. Received rave reviews in Year 1.
1/9-12/2003	International CES	Las Vegas Convention Center— Las Vegas, CA	Consumer electronics show. Limited technology appeal for big systems, but still worth from a client/server perspective.
4/27-5/2, 2003	Networkworld + Interop	Las Vegas Convention Center— Las Vegas, CA	Big networking show. More and more storage vendors showing up. Definitely a must-go show.

## SIJ Transaction History (Jan. 2001 to Present)

Date	Company	Description	Seller	Buyer	Investor	Value	Investment	Terms	Product/Service <sup>2</sup>
<b>2002 Transactions</b>									
12/19/03	Jereva	Acquisition	Veritas	Veritas		\$62M		Cash	Server automation
12/19/03	Precise Software	Acquisition	Veritas	Veritas		\$537M		Up to 25% stock, with remainder at \$16.50 per share	Application performance management
12/19/03	Tacit Networks	A round			<b>RRE Ventures, Canaan Partners, Silicon Alley Seed</b>		\$7.3M		Caching appliance
10/21/02	Data Domain	A round			<b>Greylock and NEA</b>		\$9.3M		Unknown
10/15/02	Snap Appliance	Spin-off	Quantum		<b>Moore Capital and Mellon Ventures</b>	\$11.3M		Cash, plus \$1.9M add'l option consideration	NAS appliance
10/16/02		Acquisition	Terraspring	Sun		\$35M			Infrastructure automation software
9/26/02		Acquisition	Sanrise	EMC		\$2.5M			Storage solutions provider
9/23/02		Acquisition	Prisa Networks	EMC		\$20M			SRM software
9/23/03	Maxxan	B round - Extension			<b>US Venture Partners, Venrock, Lucent, Ironweed, Trellis, United Investment, China Development Industrial Bank, Premier Capital, Askew International, Global Strategic Investment Fund, Chiao Tung Bank, Prudence Capital, Infinity Global Investment, WQ Investments.</b>		\$25M		NAS gateway - storage switch
9/17/02	Sierra Logic	B round			<b>Interwest, TPG, JP Morgan, QTV</b>		\$12M		Serial-ATA silicon
9/17/02		Acquisition	Pirus Networks	Sun		\$160M			SRM software
9/16/02	Panasas	C Round			<b>Centennial, Intel, Novak-Biddle, Carlyle, Evercore, Mohr Davidow</b>		\$32M		Massively scalable storage systems
9/6/02	Acirro	Shut down							Distributed file system
9/3/02	Arsenal Digital	D round			<b>Covestco, Southeast Interactive Technology, Task Holdings</b>		\$5M		Storage service provider

Notes: 1. Lead investor, if known. 2. Major product or service

Source: Company press releases, various news reports

## SIJ Transaction History (Jan. 2001 to Present)

Date	Company	Description	Seller	Buyer	Investor	Value	Investment	Terms	Product/Service <sup>2</sup>
<b>2002 Transactions</b>									
8/29/02		Acquisition	TrelliSoft	IBM		Unknown			SRM software
8/30/02	Compellent Technology	A round					\$9M		SAN software
8/20/02		Acquisition	Andiamo	Cisco		Up to \$2.5B		Multiple to annualized revenue in April 2004 quarter	Multi-layer switch
8/15/02	MaxAttach	Shut down							Workgroup NAS hardware
8/13/02	Storability	C Round			<b>Battery, Technology Investors, Sprout Group, Lee Munder</b>		\$12M		Storage asset management
8/5/02		Sale of assets	Cereva	EMC		\$10M			Massively scalable storage systems
7/25/02		Sale of hosting assets	StorageWay	Cable & Wireless		\$2M			Storage solutions provider
7/22/02	Isilon	B round			<b>Sequoia, Atlas, Madrona</b>		\$15M		Static content storage. Distributed file system
6/24/02	Cereva	Shut down							Massively scalable storage systems
6/17/02		Acquisition	Comstock	Hitachi		\$20M			SRM software
6/12/02	Sanrise	Chapter 11			Crosspoint, Comdisco, Fenwick & West, GATX Ventures, Greenbridge Capital, Global Innovation Partners, Hitachi, Morgan Keegan, Morgan Stanley, Sun, Texas Pacific, Veritas, Wilson Sonsini, Oasis, Greenspun				Storage solutions provider
5/29/02	Confluence Networks	B round			<b>Venture Strategy Partners, Redpoint, NEA, Dali Hook Partners, Comcast Interactive, Seagate</b>		\$28.3M		Undisclosed. Rumored multiprotocol storage router
5/20/02	Spinnaker Networks	B round			<b>Mellon, GIC Special Investments, Menlo, Norwest,</b>		\$31M		Distributed storage systems
5/10/02	InterSAN	C round			<b>Worldview Technology, Fidelity Ventures, Soundview Ventures, Alliance Ventures, Kumar Malavalli, Morgan Keegan</b>		\$17.8M		SRM software

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Source: Company press releases, various news reports

## SIJ Transaction History (Jan. 2001 to Present)

Date	Company	Description	Seller	Buyer	Investor	Value	Investment	Terms	Product/Service <sup>2</sup>
<b>2002 Transactions</b>									
2/11/02	NetOctave	B round			<b>Intersouth Partners</b> , Intel, Kitty Hawk Capital, MCNC, North Carolina Enterprise Fund, Wakefield Group	\$7.8M			Network security processors
2/11/02	Intransa	B round			<b>Sofinova Venture and Advanced Technology Partners</b> , Sofinova Partners, US Venture Partners	\$10M			Undisclosed. Ethernet storage.
2/7/02	Storactive	A round			<b>Moore Capital and Mellon Ventures</b> , Smart Technology	\$15.7M			SRM software. Focus on tape.
2/4/02	LiveVault	Strategic and financial			<b>Atlas and Matrix Partners</b> , Iron Mountain, Adam Street Partners	\$8M			Storage solutions provider. Backup/recovery
1/23/02	Chaparal Network	Strategic and financial			Undisclosed strategic, Tech Harvest Group, Aweida	\$12M			RAID controllers, SCSI routers
1/15/02	Invio	A round			Trinity	Undisclosed			SRM software
<b>2001 Transactions</b>									
12/18/01	Maranti Networks	B round			<b>Menlo and Trinity</b> , Alliance	\$25M			Fibre Channel, iSCSI switch
12/18/01	Aristos Logic	B round			<b>JP Morgan Partners and TPG</b> , Quantum Technology	\$15.5M			Storage processing ASICs
12/3/01	Arsenal Digital	C round			<b>Southeast Interactive Technology Funds</b> , Covestco, Task USA, MCNC	\$23M			Storage solutions provider. Backup/recovery
11/5/01	Zambeel	B round			<b>Amerindo and Aurora Technology Funds</b> , Armada, Integral Capital, Juniper Networks, Merrill Lynch, Mitsui, Morgan Keegan, Sands Brothers, Kleiner Perkins Caufield & Byers, New Enterprise Associates	\$52.6M			Distributed storage systems

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Source: Company press releases, various news reports

## SIJ Transaction History (Jan. 2001 to Present)

Date	Company	Description	Seller	Buyer	Investor	Value	Investment	Terms	Product/Service <sup>2</sup>
<b>2001 Transactions</b>									
10/9/01	MaxXan Systems	B round			<b>Venrock, US Venture Partners</b> , Lucent Venture, Ironweed Capital, Trellis Partners, UMC, United Investment, China Development Industrial Bank, Premier Capital Management	\$20M			Fibre Channel, IP switch
10/1/01	DataDirect Networks	A round			Clearlight Partners, Digital Coast Partners, PARTCOM	\$9.9M			Storage switch
10/1/01	Panasas	B round			<b>Caryle Venture Partners</b> , Goldman Sachs, Mohr Davidow	\$25.4M			Undisclosed
9/25/01	Pirus Networks	B2 round			<b>JAFCO</b>	\$9.5M			Fibre Channel, iSCSI switch
9/24/01	Silverback Systems				JP Morgan, Newbury, Pitango, Gemini Israel Funds	\$15M			Network processor. TOE.
9/19/01	Yotta Yotta	C Round			B of A Securities, Noble Networks, Bombardier Trust UK, Davenport Capital, Grosvenor Funds, Optical Capital Group, Morgan Keegan, Technocap	\$26M			Parallel storage systems
9/5/01	Rhapsody Networks	B round			<b>Morgan Stanley Technology</b> , Accel Partners, Sequoia Capital, Amerindo	\$50M			Undisclosed
8/15/01	InfiniSwitch	B round			<b>Bessemer</b> , One Liberty, NewcoGen Group, Columbia Capital, TL Ventures, Moore Capital	\$26M			Infiniband switch
8/10/01		Acquisition	Connex	Quantum		\$1.1M			
8/7/01	Sacle Eight	C round			<b>Oak</b> , STAR, InterWest Partners, Center Point, Crown Advisors	\$23M			Storage solutions provider
7/25/01		Acquisition	StorageApps	HP		\$350M		HP stock	
7/25/01	Storability	B round			<b>Technology Partners and Sprout Group</b> , Lee Munder, Battery, Madison Dearborn, Lightspeed	\$30M			Storage solutions provider

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Source: Company press releases, various news reports

## SIJ Transaction History (Jan. 2001 to Present)

Date	Company	Description	Seller	Buyer	Investor	Value	Investment	Terms	Product/Service <sup>2</sup>
<b>2001 Transactions</b>									
7/23/01	Trebia Networks	B round			Atlas, Kodiak, Raza Foundries, BancBoston Ventures, Vantage Point, Allianz of America, Deutsche Bank Alex Brown	\$30M			Storage network processor
7/2/01	3PARdata	C Round and strategic			Amerindo, Mayfield, and Worldview Technology, Sun, Veritas, Oracle, NetOne Systems, Nissho Electronics, Intec IT Capital, Anschutz Investment, Aurora Technology Fund, Dain Rauscher Wessels, iGlobe Partners Fund, Merrill Lynch, Mitsubishi Capital, Mitsubishi International, Thomas Weisel Partners, Van Wagoner Capital	\$100M			Carrier-class storage systems
7/2/01	Akara	B round			Vengrowth, Corning Innovation Ventures, Dain Rauscher Wessels, Morgan Keegan, Presidio Venture Partners, Sumitomo, Battery, Greylock	\$30M		Stock + cash	Storage over SONET
7/2/01		Acquisition	Platys	Adaptecc		\$150M			
6/26/02	Broadband Storage	A round			Mellon, Moore Capital, Morgan Keegan, Global Euronet	\$16M			Undisclosed. Likely a Fibre Channel story
6/21/01	StorageWay	C Round			Matrix Partners and Redpoint. GE Equity, Lighthouse Capital, Montreux Equity Partners, Needham Capital, Sands Brothers, Wheatley Partners, Worldview Technology Partners	\$42M			Storage solutions provider.
5/8/01	SANGate Systems	B round			Jerusalem Venture Partners, Battery	\$10M			Storage apps server

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## SIJ Transaction History (Jan. 2001 to Present)

Date	Company	Description	Seller	Buyer	Investor	Value	Investment	Terms	Product/Service <sup>2</sup>
<b>2001 Transactions</b>									
5/7/01	BlueArc	Acquisition	FilePool	EMC	Weston Presidio, Apax Partners, Patriot & Co, Dell, EUROQUBE, NY State Public Retirement Fund, JP Morgan Partners, Ft. Washington Capital	\$72M	\$50M	Cash	NAS server
2/11/01		Acquisition	Pathlight	ADIC		\$230M		Stock	
1/26/01		Acquisition							
1/25/01	StoreAge	B round			Cisco, Genesis Partners, IIS, Koonras Technologies, Morgan Keegan, Ophirtech		\$25M		Out-of-band storage virtualization manager
1/22/01	Storigen	B round			Thomas Weisel Venture, Battery, Charles River, One Liberty, Pilot House		\$25M		Storage server and software
1/17/01	TrueSAN	B round			Woodside Fund, Merrill Lynch, Qlogic, JT Venture Partners, Credit Suisse First Boston, Spring Creek, Finisar		\$30M		SRM software

Notes: 1. Lead investor, if known. 2. Major product or service

Source: Company press releases, various news reports

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