



EMC: From storage to big data

by Danny Bradbury

EMC has expanded rapidly from a simple storage company to a firm that supports several of IT's major pillars, but to fulfil its potential it must integrate its many acquisitions and overcome the challenges of commoditisation and increasing competition in the storage market

Back in the good old days of computing, when the industry was awash with money, blockbuster product launches were a regular thing. Analysts and journalists would be flown across oceans to participate in rock concert-style roll-outs of unremarkable products. Post-crash, transatlantic flights have been replaced with product launches in Bracknell and sandwiches.

So when EMC crammed 26 dancers into the back of a Mini Cooper in New York in January 2011, it seemed like old times. The stunt set a Guinness World Record to mark EMC's launch of 41 storage products.

EMC's new VNX unified storage family squeezed the Clariion and Celerra storage area network (SAN) and network attached storage (NAS) platforms into a single box. It targeted everyone from entry-level customers to large enterprises. EMC upgraded its Symmetrix VMAX system, launched new deduplication appliances, and also showed off the first EMC-branded products from its Isilon acquisition.

EMC's rationale for what it called the biggest storage product launch in history was simple, says IDC executive analyst Ben Woo. "It wanted people to realise that it was still number one in storage," he says. "EMC now controls over a quarter of the entire market share. It wanted to reaffirm its leadership."

A leader in storage

Having a quarter of the market gives EMC a lot of muscle, but even if the firm itself doesn't think it has an identity crisis, the market does. After all, it is not the same company as it was even a year ago. "The company has transformed beyond all recognition in the last decade," says Simon Robinson, storage research director at analyst firm The 451 Group.

Before CEO Joseph Tucci took the helm in 2001, EMC was a one-trick pony. It made a healthy profit selling the Symmetrix hard drive array, but under Tucci's leadership, it expanded into a diversified hardware, software and services company, just as other firms such as Cisco and HP have done. "That makes the company a more strategic player. It has allowed EMC to be more entrenched and be viewed as a strategic partner by large firms," says Robinson.

From its simple storage roots, EMC has built robust offerings in two other key areas: security, and virtualisation, adeptly anticipating and, to a certain extent, driving their growth.

Tucci has engineered this expansion through a series of daring acquisitions, including landmark purchases such as RSA (security) and VMware (virtualisation). "He has also brought tremendous talent into the company, in the form of [Intel's] Pat Gelsinger and Paul Maritz [now

EMC overview

EMC was incorporated in Massachusetts in 1979, and is headquartered in Hopkinton, Massachusetts (*pictured left*).

It operates in two broad categories: its information infrastructure business, and its VMware virtual infrastructure operation, represented by its majority stake in VMware.

The company is divided into several segments. Information Storage handles its core storage products, and EMC Global Services helps customer to design and deploy storage systems in their organisations. RSA Information Security handles its security presence, while the Information Intelligence Group helps customers to use their information more effectively in areas such as governance and records management. VMware focuses on virtual and cloud-based offerings.

Key facts

Formed: 1979

Headquartered: Hopkinton, Massachusetts, USA

Employees: 48,500 (9,000 of whom are employed by VMware).

President and CEO: Joseph Tucci

Main source of revenue: Information storage

CEO of VMware],” Woo says. “He has demonstrated himself to be a good businessperson, as well as someone who understands technology, and he has surrounded himself with people who can help him recognise that future.”

EMC’s pre-2000 acquisitions were relatively limited. It bought minicomputer firm Data General in 1999, stripping it of everything but its Clariion line of storage systems, which are still part of its portfolio today.

However, that changed in the first decade of this century, when the firm became far more acquisitive. In the past 10 years, it has snapped up tens of companies.

Ken Steinhardt, director of technology analysis at EMC, explains that the acquisitions were a critical part of EMC’s transformation. The firm was in the first phase of this evolution when he joined 16 years ago. Back then, it was purely a storage company, and its strategic object was simply to sell its boxes to everyone. However, it began a critical shift in focus, switching to the information that its customers were storing, rather than simply the disks that they were putting it on.

EMC’s expansion strategy was an attempt to add value to the information the company stores, and it was predicated on the understanding that the volume of information people need to store is growing rapidly.

An aggressive stance

Research by IDC highlighted the fact that while 70% of the data created in the future would be created by individuals and 75% of it would be managed by large organisations, Steinhardt says.

What happened then was fascinating, says Clive Longbottom, founder of analyst firm Quocirca. EMC realised it needed to develop products to help organisations manage the information they stored.

EMC snapped up firms such as back-up provider Legato and then content management specialist Documentum. It needed to turn customer infrastructures into single, manageable, logical environments, so it purchased VMware, the most promising virtualisation company on the market at the time. After that, it needed to make the whole customer infrastructure more secure, leading to its purchase of RSA.

EMC’s merger and acquisition strategy eventually created three main operating segments in addition to its core Information Storage group: security, information intelligence (the group that helps customers leverage the data they have stored), and virtualisation infrastructure (the group formed by VMware, which it purchased in 2003).

The company’s strategy rests on spotting growth opportunities where it has a gap, and then selecting the company that is growing the fastest in that emerging market. Such was the case with Isilon, the provider of scale-out NAS products, in late 2010. The catalyst for that was the emergence of high-volume information storage such as video.

“It let EMC acquire a technology which is something that a lot of organisations could grow into,” says Woo. “It could scale up, and produce bigger and better systems year in and year out, but Isilon helped it to scale out.”

While it may buy best-of-breed technologies, EMC also occasionally makes space for more than one company in a given category. Such was the case with Data Domain, which specialises in deduplication, a fast-growing technology area that helps companies to save money by eliminating identical data stored more than once.

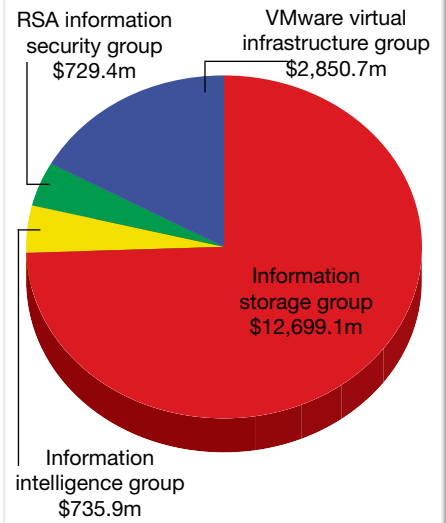
Prior to buying Data Domain, EMC had already bought Avamar in 2006, which played in the same market. “EMC snatched it from under NetApp’s nose, and now that business is screaming along,” Robinson says.

Digestive problems

However, not everyone is as impressed with Tucci’s acquisitive style. One of the biggest problems facing the many companies which have gone on an acquisitive binge in the past decade is indigestion. It is difficult to absorb companies organisationally and culturally, while aligning products.

“Every time Tucci has made an acquisition, I’ve thought the theory behind that is inspired,” Longbottom says, but he worries that the company fails in execution. He argues that Legato, a firm that once stood proudly on its own, with a clearly defined strategy and unique identity, has become lost in the behemoth that is EMC. “And VMware was effectively spun out,” he says. In 2007, EMC sold some of VMware in a successful IPO. Even though EMC retains a majority stake in the firm, the IPO showed a lack of integration between the two companies.

EMC revenue by segment (2010)



Source: EMC

Key executives

Joseph M. Tucci, chairman of the board of directors, president and chief executive officer of EMC Corporation:

Joe Tucci has been EMC’s chairman since January 2006 and CEO since January 2001, one year after he joined the company as president and chief operating officer. He is also chairman of the board of directors of VMware Corporation.

William J. Teuber, vice-chairman, EMC:

William J. (Bill) Teuber has been vice-chairman at EMC Corporation since May 2006. In this role he leads EMC Customer Operations, the company’s worldwide sales and distribution organisation.

Pat Gelsinger, president and chief operating officer, EMC Information Infrastructure Products:

Gelsinger, formerly of Intel, is responsible for EMC’s Information Infrastructure product portfolio, including its Information Storage, RSA Information Security, Content Management, Ionix IT management and Data Computing divisions. He reports to Joe Tucci, EMC’s chairman, president and CEO.

Howard D. Elias, president and chief operating officer, EMC Information Infrastructure and Cloud Services:

Elias governs the strategy for EMC services in the area of cloud computing.

David Goulden, executive vice-president and chief financial officer:

In addition to his financial role, Goulden also heads up the firm’s information technology and investor relations functions.

Longbottom feels the same way about RSA, which he argues was never really brought into the fold, and still operates separately from EMC. "It hasn't made a mess of RSA. It just hasn't done anything with it."

Steinhardt retorts that RSA has integrated extensively with EMC. "We have integrated encryption and key management into our technologies. We have been a huge beneficiary in using security as a differentiating factor into our core products," he says.

He also points to the integration of VMware into the firm's storage management products. The firm now has over 70 integration points between its VMware and storage offerings.

And then there are other integrations, such as Greenplum, the data warehousing and analytics supplier that it acquired last year. "Within weeks of that acquisition, we provided an integrated appliance-based solution," Steinhardt says.

Still, these are spot integrations, rather than broader, strategic ties between its companies and product sets. Does that matter? Robinson argues that other companies have suffered the same problems. Symantec, for example, has tried to bring together storage, security and information management with its Veritas acquisition, for example, with limited success.

"The point is that customers are very siloed as well," he argues. "The customers themselves don't think about it in those strategic, holistic terms." Ultimately, people are still going to buy RSA equipment, independently of whether it is owned by the world's largest storage supplier – and the security people evaluating those solutions are unlikely to be the same people evaluating SAN arrays. Perhaps a little integration is enough.

The life of data

EMC's increasing focus on information eventually saw it marry the idea of managing the storage and managing the information at the same time. The company began promoting its notion of information lifecycle management (ILM), in which information is treated as an asset that is born, grows, and dies. Information is managed throughout those phases, and would switch to different storage media, and governed by different policies, depending on how sensitive it is, which people need to see it, and how frequently they need to access it.

The original thinking was simply to move the information to the right place at the right time. When ILM was first conceived, storage tiering was a highly manual process that involved the expert use of monitoring tools. The data classification process was time consuming.

EMC is still pushing the concept of ILM, although now it has more automated storage tools that help with the process, says Steinhardt. He argues that today, systems can "simply take your data and run with it". Storage management tools have certainly evolved over the past few years, especially as storage virtualisation has taken off. Storage area networks have made it easier to manage logical units of storage on physical boxes. This has led to the evolution of storage resource management tools, which help to automate the management of virtualised storage.

The company does a good job of identifying the assets a customer has, partitioning and aggregating storage, although like many storage suppliers, it is best equipped to do this in its own environment. Storage virtualisation is still balkanised, with individual suppliers offering highly integrated storage and storage management offerings optimised to work together.

EMC was relatively limited in its support for storage area networks until April 2010, says Steinhardt. Then the company launched VPLEX, a storage platform designed to let customers move virtual machines between sites over vast distances. The idea is to let administrators shift IT processing loads away from regional distances, and even to systematically move batch processing to places with lower energy costs. Customers can also use the platform to balance workloads around the globe dynamically, the firm says.

EMC's storage portfolio extends beyond the enterprise. It bought the tape storage specialist Iomega in 2008. Steinhardt argues that in addition to fleshing out its enterprise offerings to cover the various pillars of IT, the company also needs to extend its reach vertically all the way down from the datacentre to the living room. "Our origins need to be the largest, most mission-critical datacentres in the world, to the most portable hard drive," he explains.

However, the company doesn't have the same ambitions to foster a networking capability inhouse. Instead, it has chosen to partner with other suppliers to build bridges into a market segment that is increasingly strategically important to it.

One of EMC's most significant networking partnerships is with networking giant Cisco. It worked with the company to form the VCE Company, which it expanded in 2010. This strategic initiative, which also includes VMware and contributions from Intel, focuses on certifying configurations of equipment and software together in "vBlocks", which are targeted at different types of application, and which are assured by each supplier to be fully tested and interoperable.

Key executives cont.

Jeremy Burton, executive vice-president and chief marketing officer

Paul T. Dacier, executive vice-president and general counsel

John T. Mollen, executive vice-president, human resources

Harry You, executive vice-president, strategy and corporate development, EMC Corporation

Arthur W. Coviello, executive vice-president, EMC Corporation, and executive chairman, RSA: Art Coviello was CEO of RSA prior to its 2006 acquisition by EMC.

Mark S. Lewis, chief strategy officer, Information Infrastructure Products Business

Rick Devenuti, president, Information Intelligence Group: Devenuti was appointed to his current position in October 2010.

Bill Scannell, executive vice-president, Americas and Europe, Middle East and Africa (EMEA)

Rainer Erlat, chairman, EMC International

Steve Leonard, president, EMC Asia Pacific/Japan

Sanjay Mirchandani, chief information officer and COO, Global Centers of Excellence

Jeffrey M. Nick, senior vice-president and chief technology officer

Irina Simmons, senior vice-president and treasurer

EMC UK local executive team

Adrian McDonald, president, EMEA-North

Chris Roche, senior technical services director, UK & Ireland

Phil Brennan, regional services director, UK & Ireland

Steve O'Neill, finance & business operations director

Dangerous partnerships

Why has EMC chosen not to crack the networking market on its own, either through organic growth, or more likely through acquisition? "Customers want best-of-breed technologies," says Steinhardt.

Perhaps, but that hasn't stopped the company buying its way into equally strategic markets, such as virtualisation and security. "Due to the openness of the networking technologies, which is the one area where standards have been the most pronounced, there is no significant value," he explains. "Openness and open standards give us a better solution."

In playing so openly with such an aggressive partner, however, EMC is leaving itself in a vulnerable position. Cisco CEO John Chambers is notoriously aggressive in his attitude towards new markets. He has expanded his target markets to more than 30 technology sectors in the past decade, and recently went head-to-head with his computing server partners by launching the Cisco Unified Computing System (UCS). What is to stop him doing the same with storage, and treading on Tucci's toes?

"When (and it is a when) Cisco decides to get into storage, does it buy a company such as EMC that will give it everything it needs for a big price, or does it go a little more tactical and buy one like NetApp, which still wouldn't be cheap?" asks The 451 Group's Robinson. Robinson favours NetApp is a good choice, because it just sells storage and has none of the other baggage that competes with Cisco's business. "That's the one that makes the most sense, and it could really put EMC in a spot," he warns.

That said, NetApp poses a big enough threat on its own, without having Cisco's muscle behind it. The company is a relative underdog, but it is also innovative, and stands a good chance of carving significant lumps out of EMC's business over time.

The problem, according to Longbottom, is that EMC's high-end Symmetrix storage system may not be the right solution for some customers any more. "Where EMC has things wrong is in thinking that it has people perfectly happy, when people are in reality waiting for other things to come along," he warns.

Symmetrix is a great product for customers running a single application on a single platform for a single, dedicated array, but SAN environments are becoming far more ephemeral, Longbottom says. "It's a mixed environment, using storage of different types."

Cloudy skies

The heterogeneous nature of the modern SAN environment gives other suppliers the chance to penetrate accounts that have been traditionally tied to EMC. Longbottom worries that the company may even slip from being a supplier of tier 1 storage to tier 2 storage for some customers. The problem is that many customers providing cloud-based services will be perfectly happy using cheaper forms of highly available storage for standard databases,

"They are asking 'can we go for just a bunch of disks (JBOD), a massive array of idle disks (MAID), or other far cheaper environments where we accept that there will be failures of this on a regular basis, but because we built in lots of availability, it is not an issue?'," he says. Adding RAID capabilities with lots of disk striping can help to bolster the availability of these cheap disk arrays. Where does that leave premium products such as Symmetrix?

While storage continues to become a commodity product, and while competitors such as NetApp continue to gain traction, EMC faces other challenges from server suppliers which are building up their own storage capabilities.

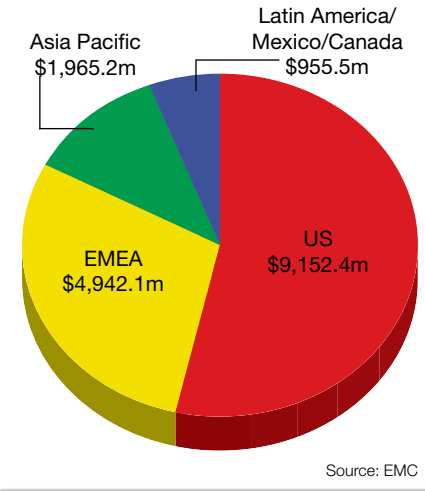
Dell, for example, purchased NAS supplier Equallogic in 2007, providing itself with a deep inroad into the market for small to medium business storage that EMC covets so badly. It also purchased data storage and back-up company Compellent at the back end of 2010, further expanding its reach into this area, after failing to secure higher-end storage supplier 3PAR in a bidding war with HP last year. Perhaps NetApp could be a suitable target for Dell, too?

"Dell was happy to sell EMC products, but it realised that it was getting 15 to 20 points in margin while passing on another 20 points to EMC," says Robinson. "Dell is trying to bump up its own margins, which is why it bought Compellent."

Unfortunately for EMC, those cloud-based companies looking for cheap, high-availability storage are critical to its success, and it will have to find a way to reconcile them with its existing product base. In just the same way as Tucci recognised the challenges in expanding beyond simple storage products post-dotcom bomb, so he will now understand the paradigm shift that is occurring as the market moves towards cloud-based sales.

Some extremists believe that the IT department will change so significantly in the next 10 years, that they will buy little hardware or software infrastructure of their own. Graeme Swan, an

EMC revenue by geography (2010)



EMC offices

Worldwide:

- South America – eight countries
- United States
- Canada
- Europe – 36 countries
- Middle East/Africa – 22 countries
- Asia Pacific – 14 countries

UK offices:

- Abingdon
- Belfast
- Birmingham
- Bracknell
- Brentford
- Bristol
- Hemel Hempstead
- Leeds
- Livingston
- London
- Manchester
- Norwich
- Surrey

advisory services partner at Ernst & Young, argues that large enterprise datacentres will scale down dramatically. "The IT department still has dominance, but the speed of making changes on these systems is not compatible with the new world," he says, envisioning instead a world of services procured for internal customers almost exclusively from cloud-based suppliers.

The upshot? In a decade, much of the equipment that EMC currently sells to enterprise customers will be sold to external cloud service providers, whose core competency lies in commoditising IT equipment.

Seinhardt hopes that RSA's portfolio of companies will position it to serve these new customers effectively. He foresees major obstacles for these service providers, particularly when it comes to security. "So that acquisition of RSA by EMC a few years ago is looking like a bargain," he says.

Key customers

East Carolina University
 Maine Medical Center
 Muzak Holdings
 South Carolina Department of Corrections
 Republic Bank
 Mary Greeley Medical Center
 California Department of Justice
 Manila Electric Company

Products

Archiving

Centera Archiving Hardware
 Data Domain back and recovery hardware
 VNX unified storage
 DiskXtender data migration software
 EMC SourceOne Archiving
 Backup & Recovery
 Data Domain deduping hardware
 Disk Library virtual tape
 Avamar backup and recovery
 NetWorker next generation data protection
 Data Protection Advisor
 HomeBase
 MozyPro

Case management

Captiva Family capture and transform paper documents
 Document Sciences Family intelligent customer communications
 Documentum Content Security
 Documentum Records Management Family
 Documentum xCP Family intelligent case management
 Greenplum Data Computing Appliance
 Greenplum Database
 Greenplum Community Edition (tools for developers and data scientists)
 Greenplum Chorus private cloud computing and social collaboration

Enterprise content management

Application Xtender Family captures and transforms paper documents
 Captiva Family capture and transform paper documents
 Document Sciences Family intelligent customer communications
 Documentum Content Security
 Documentum Digital Asset Management Family
 Documentum Standard Family
 Documentum Records Management Family
 Documentum WEM by Fatwire Family
 My Documentum Family

Information governance

Documentum Records Management Family
 EMC SourceOne Archiving Family
 EMC SourceOne e-Discovery Family

File intelligence

EMC SourceOne File Intelligence

IT management

Infra software
 IT Operations Intelligence software
 Voyence software
 Ionix Configuration Analytics Manager
 Ionix Data Center Insight
 Ionix IT Performance Reporter Network Edition
 VMware Alive
 VMware vCenter Application Discovery Manager

VMware vCenter Server Configuration Manager

Replication

RecoverPoint Software
 Celerra Replicator Software
 MirrorView
 Replication Enabler for Exchange 2010
 Replication Manager
 SnapView
 SRDF
 TimeFinder

Security

Documentum Content Security
 RSA, The Security Division of EMC

Software Development Kit and Driver

Captiva ISIS Drivers
 Captive PixTools SDK

Storage

Celerra
 CLARiiON
 Connectrix
 EMC Centera
 Iomega
 Isilon
 Symmetrix
 VNX
 VPLEX
 Atmos Software
 PowerPath Software
 CLARiiON Virtual Provisioning
 z/QS Storage Manager

Third-Party Products (EMC Select)

Business Continuity and Disaster Recovery
 Backup, Recovery and Archiving
 Content Management
 Converged Storage Networking
 Host Bus Adapters (HBAs), Converged Network Adapters (CNAs), and Switches
 Mainframe
 Peripherals
 Security
 Storage and Performance Management
 Virtualization
 WAN Optimization and High Speed Data Transfer
 MC Select Partner Technologies

Virtualization

VMWare Hardware
 VPLEX Hardware
 Invista Software
 Ionix Server Manager
 VMWare vCenter Application Discovery Manager

Woo also sees strength in EMC's broader product portfolio when it comes to tackling this emerging market of cloud-based service providers. "EMC is well-positioned, because big data is about the processing, the collection, and the analysis of disparate bits of information and data, and that is where it is aiming," he argues. "If it can have an influential role in the way data is stored and retrieved, then it can have a say in how it is consumed."

The growth in revenues from EMC's segments other than core storage in the past year don't entirely bear out the idea that its non-core business will grow more quickly. It is true that product revenues from the VMware Virtual Infrastructure division soared by over a third in 2010, compared with a still-healthy 22.6% increase in product sales in the core Information Storage segment. Security fared less well, growing by a still-healthy 17.6%, while product revenues at the Information Intelligence Group – the part that is meant to focus on helping customers to leverage their information rather than simply store it – inched upwards by a mere 3.2%.

Timeline

2009

- Outlines Fully Automated Tiered Storage (FAST) technology
- Forms coalition with Cisco and VMware to accelerate virtualisation
- Announces First Data Secure Transaction Management
- Announces Pat Gelsinger as president and the COO of Information Infrastructure Products
- Announces Howard Elias as president and COO of EMC information infrastructure and cloud services

2008

- Opens the Data Warehouse/Business Intelligence competency Center
- Together with Dell, announces multi-year extension of the global alliance through 2013. The alliance, formed in 2001, sees Dell sell EMC hardware as co-branded Dell/EMC systems. It also sells EMC software.
- Delivers Atmos policy-based solution for cloud storage infrastructures
- Introduces its first switch for Fiber Channel over Ethernet

2007

- Announces plans to double investment in China
- Announces acquisition of Voyence
- Acquires Berkeley data systems
- Delivers industry's first deduplication back-up product on VMware
- Launches new information management consulting practice

2006

- Announces plans to acquire Avamar Technologies
- Acquires RSA Security and Network Intelligence
- Acquires ProActivity
- Enhances retrospect back-up and recovery software for SMEs
- Delivers world's fastest, most flexible and scalable storage array

2005

- Completes acquisition of Captiva
- Announces EMC InVista Network Storage Virtualisation platform
- Launches next-generation ECM platform
- Completes SMARTS acquisition

2004

- Celebrates 25 years of innovation and achievement
- Announces 100th Integrated EMC Centera Application

2003

- Completes acquisition of Documentum
- Introduces EMC Visual SRM and EMC VisualSAN
- Introduces EMC Symmetrix DMX

2002

- Introduces EMC Automated Resource Manager
- Named GM Supplier of the Year
- Launches EMC Centera

2001

- Named in Fortune's 100 Best Companies to work for in America
- Introduces EMC Clariion FC4700 systems and software

2000

- Introduces EMC Symmetric 8000 family
- Unveils E-Infostructure Interoperability Program, which formally certifies customers that have successfully implemented top-end EMC products across large swathes of their infrastructure

1999

- Named Stock of the Decade by New York Stock Exchange
- Introduces the Enterprise Storage Network

1998

- Opens new manufacturing facility in Franklin, MA
- Reaches software revenue of \$445m
- Revenue nears \$4bn

1997

- Introduces new line of EMC Symmetric products

1996

- Introduces EMC Data Manager

1995

- Introduces EMC Symmetrix 3000
- Overtakes IBM as mainframe storage market leader

1994

- Enters Fortune 500
- Announces EMC Symmetrix 5500

1990

- Introduces EMC Symmetrix 4200

1989

- Develops advanced storage subsystems
- Unveils Orion

1988

- Opens manufacturing facility in Cork, Ireland
- Stock listed on New York

1987

- Moves headquarters to Massachusetts

1986

- Stock goes public on the NASDAQ

1985

- First to ship memory upgrades using 1Mbit RAM

1981

- Develops 64-kilobyte chip memory boards for Prime Computer, Inc.

Woo also points out that a significant step along the road to true public cloud computing is the building of private clouds behind the firewall, which he says is nothing new for EMC. "It was one of the first firms to come out with replication across multiple sites," he says. The company is now extending that from an asynchronous activity to a geographically dispersed and synchronous function, in which customers can find the information in real-time across far-flung remote sites.

It is also important to acknowledge EMC's other target in tomorrow's IT market: big data. The company classifies big data as unstructured information, stored in petabytes rather than terabytes, which must be analysed to be useful. Examples such as social media data spring to mind. This will require higher-end systems such as Symmetrix; JBOD just won't do.

A challenging road ahead

In the next five years, EMC must work hard to pull together the expertise that it has purchased in a way that will serve the market as it expands in a new direction. And yet, its core storage business still makes up 80% of its revenue. Perhaps that is partly why the markets continue to punish EMC. "Its vision is a strong one. Where the challenge comes is that the financial markets don't see it yet," Woo concludes.

Robinson agrees. EMC is regularly undervalued by the markets. "Wall Street doesn't value hardware," he says, pointing out that at one stage, VMware was worth more than EMC. "There are still questions about the long-term viability of being a hardware supplier."

When Tucci hired Pat Gelsinger as his second-in-command, what he was really buying was someone who could remove as much inefficiency from the hardware model as possible. That is why all of EMC's systems now run on Intel architecture, which enables the company to drive down the price point on its products further.

EMC, then, faces multiple challenges, not least of which is the commoditisation of storage and the gradual encroachment of other suppliers on its key turf. But those who ignore what the company has done in the past 10 years risk being blinkered to its future potential. It could have done a better job of integrating its acquisitions, but it did make some key connections between products at strategic points. It expanded itself from a simple storage company to a firm that supports several of IT's major pillars. Identifying these pillars was insightful enough. Buying and nurturing companies that were at the forefront of those markets was gutsy and smart.

In summary, that is EMC's biggest problem. It needs to work out what it is. The market has associated EMC with storage for over 30 years. Does it really want to be a storage company any more? If not, then what will it be tomorrow?



EMC Celerra NS-960 (multi-protocol)