

## **Quantum Establishing Itself as a Formidable Player in Data De-Duplication**

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Quantum has been quietly strengthening its position in the data protection market via internal development, acquisition, and pragmatic leveraging of its technology, as is evident in the area of data de-duplication. Through its acquisition of ADIC in August 2006, Quantum now has fundamental intellectual property in data de-duplication technology developed by Rocksoft, which had earlier been acquired by ADIC. While on the surface this was just one element of a much broader deal, we believe its implications go much deeper than what is visible so far.

Most recently, Quantum signed a cross-licensing agreement with Data Domain centered around data de-duplication patents, for which it received pre-IPO shares of Data Domain stock. Since there are other vendors in the marketplace that use data de-duplication technologies conceptually similar to that pioneered by Rocksoft, Quantum may have similar claims that could lead to other agreements. In addition, we think Quantum is in a very strong position to negotiate favorable licensing deals with other vendors that do not have such technologies in their arsenal. The agreement with Data Domain also comes on top of Quantum's recent integration of data de-duplication technology into its disk-based appliance and data management software portfolios.

We believe an overhaul of the data protection environment has just begun in corporations of all sizes. This transformation will take five years to complete. Data de-duplication technologies, which Taneja Group classifies under Capacity Optimized Storage (COS), will play a significant role in this overhaul. As a result, Quantum has jockeyed itself into a very favorable position to play a major role in the next generation of data protection products.

### **Quantum-Data Domain Agreement**

On March 30, 2007, Data Domain submitted an S-1 to the SEC and thereby made public its intent to do an IPO in the near future. Hidden within the S-1 was a statement that Data Domain and Quantum had reached an agreement that allows cross-licensing of data de-duplication patents (to be clear, not technologies) between the two companies.

According to the statement, the agreement came after Quantum approached Data Domain about licensing Quantum patents Data Domain may have used in its products. As part of the agreement, Quantum received payment in the form of 390,000 shares of Data Domain stock (assessed pre-IPO value of \$3.3M) that Quantum is free to sell upon Data Domain's IPO.

We believe this agreement has implications for the industry that go beyond simple cross-licensing of data de-duplication patents. It signals that the fundamental patent on variable length data de-duplication technologies now owned by Quantum may have an impact on other companies that have used similar technologies in their products. Since we are industry analysts and not lawyers we cannot comment on the strength of any patent claim Quantum may have against others, only that there may be a basis for discussion with other vendors that have used similar concepts. That list includes EMC (as a result of its Avamar acquisition), Riverbed and FalconStor's VTL product, which indirectly could impact IBM, Sun, EMC and several others that OEM a version of the FalconStor product.

## **The Changing Data Protection Landscape**

As we have stated publicly over the past five years the data protection market is ready for a major overhaul, after a near-static state for two decades or more. This overhaul is necessary in that the current data protection methodologies are at a break point, given the amount of data that needs to be protected. The growth rate of data is only exacerbating this problem. Compounding the issue are the numerous regulations requiring that certain types of data be securely retained for future access for years, if not decades. These requirements can only be met with disk-based data protection offerings in the form of VTL, disk-as-disk using NAS interface, continuous data protection (CDP) and others. In fact, we believe that even these offerings are *necessary but not sufficient*

without COS technologies working in conjunction with them. COS technologies have the ability to squeeze duplication out of backups and archives, even at the sub-file level, yielding effective de-duplication ratios of 25:1 or more. At these ratios, disk-based solutions become extremely cost-effective, fundamentally changing the economics of disk storage and data transmission and enabling new solutions across the data protection landscape.

This has been most evident in the area of backup, recovery and replication. By greatly increasing effective disk capacity, COS facilitates much longer backup data retention (months instead of just days or weeks) and enables fast data recovery. And remote replication, which is useful for data consolidation and disaster recovery, becomes much more affordable as COS technologies transmit only unique data across the WAN and therefore require significantly less network bandwidth than traditional methods. At the same time, COS is playing an expanding role in other applications for protecting, retaining and transmitting data. These include long-term archiving, CDP, secure retention for compliance and WAN optimization.

## **Market Forecast**

Our December 2006 Emerging Markets Forecast (EMF) report on Data Protection Technologies speaks to this critical role of COS moving forward. We forecast that while VTL revenues will grow at a compound annual growth rate (CAGR) of 31% from 2006 to 2010, the mix will dramatically shift from non-capacity optimized VTL products

to capacity-optimized VTL products over that time period. In 2006, capacity-optimized VTL revenues were only 1% of total VTL revenues, but we expect they will represent 95% of the total by 2010. Basically, what we are saying is that, in our view, non-capacity optimized VTL revenues will peak in 2007 and rapidly decline thereafter as capacity-optimized versions are put into production. Another way to look at this is to realize that capacity-optimized VTL revenues will experience a CAGR of 330% over the four-year timeframe.

Since capacity-optimized technologies are not simply applicable to VTL products, we also looked at the projected revenue growth of Other Capacity Optimized Storage (OCOS) over the same time horizon. In 2006 OCOS revenues were \$84M, and we project that OCOS revenues will climb to \$594M in 2010, representing a CAGR of 63%. When viewed strictly through the capacity-optimized lens, we see total capacity-optimized VTL and OCOS revenues climbing from \$87M to \$1,615M, a CAGR of 108%.

### **Quantum's Increasing Presence in Data De-duplication**

Data de-duplication is the essence of this COS forecast, and these technologies are at the heart of the paradigm shift that is beginning to occur in data protection. It is within this context that we view the implications of the Quantum-Data Domain cross-licensing agreement. First, the agreement lends credibility to the idea that Data Domain recognized the strength of Quantum's foundational patent. Granted, Data Domain may have made a pragmatic

decision to ensure that the IPO process progressed without a hitch, but, nevertheless, it does strengthen Quantum's patent position. In addition, while there are vendors who have data de-duplication technologies developed using entirely different principles, we suspect Quantum is having conversations with those vendors that have utilized variable length data de-duplication methods. Depending on the strength of its patent position we may see other licensing agreements that would be favorable to Quantum. Finally, any storage vendor in the market that has not developed its own such technology is now in deep trouble. We believe developing a competitive data de-duplication technology is a two-year effort *if* one has the right development team on hand. Given our view that starting this year it will become increasingly difficult to sell VTL or other disk-based data protection products without integrated data de-duplication technologies, a vendor is either already in the game or it is out. This places Quantum in a very strong position to negotiate with those not yet in the game who want a piece of the action.

Regardless of how well Quantum is able to leverage its core patent with others, two things are clear to us. One, that Quantum now has a leadership position in technology that we consider crucial for the development of competitive data protection products. Second, Quantum has been smart in moving quickly to incorporate its data de-duplication technology into its DXi-Series disk-based appliances and StorNext data management software platform. Data de-duplication is a key element of the DXi-Series' integrated software layer that also includes a high

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performance embedded file system, support for high-speed data compression, asynchronous replication, interface flexibility (NAS and Fibre Channel/iSCSI VTL), and technology links to enable such services as remote diagnostics, monitoring and alerts. Quantum also recently announced that it has added data de-duplication to its StorNext high performance workflow and intelligent archiving software, making it the first solution in its class to provide such functionality for archiving. While it's still early to tell how successful these products will be in the market, we've been impressed with what they offer and expect Quantum will continue to integrate data de-duplication into future products across its backup, recovery and archive portfolio.

### **Taneja Group Opinion**

We are extremely optimistic about the data protection market over the next five years. We believe a metamorphosis is underway and we are at the very beginning stages of it. At the very core of this is data de-duplication technologies. Through its internal evolution, acquisition of ADIC and speed in productizing and licensing its de-duplication technology, Quantum has positioned itself as a formidable purveyor of data protection products, and a company we would advise customers to definitely consider as they look to meet the challenges they face in this evolving market.

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