

# 1.0 dataSentinel's Disruptive Technology

## 1.1. Basic Concept

**dataSentinel** has developed a technology that is fundamentally different in the way files are stored. It is better than the way that all conventional 'File-Server' operating systems work. Here are some of its advantages:

- Its technique for storing files across many distributed computers is many orders of magnitude more secure than existing designs.
- It can easily allow its users to create any number of independent drives that are private to the user or shared exclusively among other users.
- It is simpler to administer and hence can be offered less expensively as a service to users.
- It can scale to any size or number of users.

It has one disadvantage:

- It is slower than conventional file server technology.

How does this fit into the 'disruptive technology' business model?

Let's compare this to a documented disruptive business process as outlined by Clayton Christensen<sup>1</sup>. Let's look specifically at what happened to Digital Equipment Corporation.

## 1.2. The DEC Story

DEC was a competitor to IBM. They built a series of powerful minicomputers ranging from the low-end PDP series to the top of the line VAX computers. Their management team was widely considered to be the best in the industry as they guided the company through decades of profit through sustaining product improvements in the form of better computer hardware and software.

DEC was destroyed by the emergence of microcomputers. It wasn't that the DEC engineers couldn't build computers based on this technology. The problem was that the business model could not adapt. DEC sold high-end minicomputers at high margins to sophisticated customers who needed the most powerful computers money could buy. These customers expected DEC to supply integration and training personnel with each new product and the cost of these resources was built into the price.

Microcomputers represented a different value proposition for its customers. Computers were mass produced with commodity hardware, loaded with a common operating system and sold to the customer who was expected to operate the computer with little or no help from the manufacturer. Microcomputers were cheap, competition was fierce and margins were low. Initially, these computers were much less powerful than their minicomputer cousins and were not capable of meeting the needs of the existing high-end market. However, over time a progression of sustaining improvements to the microprocessors produced systems fast enough to meet the needs of all but the most demanding users.

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<sup>1</sup>Clayton Christensen, The Innovator's Solution, 2004

In the last decade of DEC's operation, management faced two kinds of proposals from its engineering staff. The first type consisted of new hardware or software improvements that would make even better computers which could be sold for higher margins to the demanding customers in the top end of their market. The latter type described microcomputer designs of less computing power that would be sold for smaller prices and much lower margins in the emerging markets. Naturally, the former proposals won. When it was realized that the minicomputer market had collapsed due to improved microcomputer technology meeting the needs of the high-end customers at a fraction of the cost, it was too late for DEC to react.

The new microcomputer manufacturing companies such as Apple, Dell, and Compaq could not compete with DEC in the early years. They survived and grew because they found a new market for their products. They sold to the home users and very small business because these users could not afford minicomputer technology and were happy to accept the inferior performance of the microcomputer as they would otherwise would not have access to computing. This represented a market of 'non-consumers' that provided sufficient profit for the early microcomputer companies to exist and develop. As the microprocessor went through a succession of sustaining improvements, it became possible to sell into the low-end of the minicomputer market. This did not upset DEC because it forced them to concentrate on the higher end of the market where margins were better. They actually became more profitable. Ultimately, the microcomputer became good enough to do most jobs, and the value driver of reduced cost overwhelmed the advantages of the minicomputer.

Now let's compare the Apple, Dell, Compaq experience with what can hypothetically happen with dataSentinel.

### **1.3. *The dataSentinel disruption***

Microsoft, SUN and Red Hat (a commercial Linux distributor) sell File-Server technology to corporations who have large numbers of users of company data that must be protected from loss and theft. Their biggest value drivers are reliability, access speed and scalability. The File-Server technology has been optimized over the last few decades. Speed is limited only by the network. Reliability is achieved through the use of high-end disk drive technology coupled with tape backup procedures. Scalability is its weakest area. New 'virtualization' software is being developed to layer above the systems to address the limitations of conventional File-Server technology to cope with larger numbers of users and increased storage demands.

dataSentinel could not sell into that market today. Its first software implementation has only been around for one year, and it was developed in a computer language that emphasizes portability and stability over speed. It would not be considered to be a high performance File-Server product.

However, there is a class of users who have different requirements. Small business and home users need a file system that will not lose their data and yet is effortless to use. They will accept lesser access speed if the cost of the service is reasonable. They will, however, insist on maximum privacy of their data. These users cannot afford to purchase dedicated computers running conventional File-Server technology, nor would they be able to take on the role of administrators for this class of software. They will accept a solution that painlessly protects their data as their only options are to perform their own backups or trust their files to an unknown off-line data storage provider on the Internet. dataSentinel will sell a service to these users rather than a product. It will be obvious to the most naïve user that this solution is secure. This service

will be deployed in an extremely simple manner. The users will merely plug a USB stick into their computer and forget about the data protection, comfortable in the knowledge that dataSentinel is solving the problem.

dataSentinel will be able to realize immediate profit from this new market, although growth will be constrained by the cost of sales and advertising. It will be sufficient, however, to embark on a process of sustaining improvements to its technology through optimization and porting to faster computer languages. Over time, its file storage solution will get faster, and it will be able to sell turn-key storage systems to small to medium sized businesses. Eventually, its superior scalability and low administrative overheads (reduced operating cost) will make it attractive to larger corporations. At some point it will acquire a reputation as a provider of quality mass storage systems and be able to sell into the highest end of the market. At this point, dataSentinel will take over a major piece of the Microsoft, SUN and Red Hat File-Server market.

The point of this comparison is that dataSentinel has the potential for moderate early profits as well as the possibility for enormous long-term growth. Clay Christensen's theories and the parallel that can be drawn with dataSentinel provide a compelling argument that qualifies an investment in this company. To summarize:

- Sony sold inferior transistor radios to the teenage “non-market” when tube radios were the better performers and eventually exploited improvements in transistor technology to become the dominant player in the high-end audio electronics market.
- Apple, Dell, Compaq etc., sold inferior personal computers to the home user “non-market” when minicomputers were the preferred equipment of big business and eventually exploited improvements in microprocessor technology to take over most of the computer systems market.
- In the same way dataSentinel will sell a simple, low-performance data protection service to the very small business and home File-Server “non-market” and has the potential to enhance its breakthrough, patented software technique to challenge the File-Server market with better scalability, security and reduced costs.