

Capstone Project – Spring 2012 – WhipTail

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Honors Designation: University Honors in Business

ABSTRACT

This study reviews the qualities of WhipTail's XLR8r compared to the general solid-state industry features and traditional storage systems to assess WhipTail's current competitive advantage and suggest next steps in the company's development. Simultaneously, it analyzes the extent of the benefits offered by solid-state technology and how those benefits could drive further innovation in areas like cloud computing and virtualization. As such, this capstone is both a potential tool for this specific company as well as a detailed look at the potential future of information technology.

WhipTail™

Executive Summary

Since its launch in 2008, WhipTail Technologies has achieved impressive results in developing a cost effective, high performance solid-state storage solution. This capstone reviews the qualities of WhipTail's XLR8r compared to the general solid-state industry features and traditional storage systems to assess WhipTail's current competitive advantage and suggest next steps in the company's development. It concludes that with patent pending technology and a lengthy list of unprecedented features, the XLR8r has the qualities of a solid market leader. WhipTail should shift attention towards developing a marketing plan, increasing capacity, and setting up a comprehensive organizational structure to complement its technological strengths and prepare for expected future growth.

Background

WhipTail Technologies (WT) offers a storage solution addressing the performance gap created by technological advances that render memory speeds of traditional hard disk drives insufficient to meet the needs of today's business

technology.¹ Traditional storage systems cannot keep up with the complicated applications that technology is currently used for (i.e., advanced software, virtualization, “cloud” technology, etc.) and therefore seriously decrease the potential performance of these applications. WhipTail is an independent service provider (ISV) of the first widely deployed flash-based storage array that improves performance while reducing the cost of storage compared to traditional solutions.

WhipTail was founded in 2008 by James Candelaria, the company’s current Chief Technology Officer as a response to a “growing customer demand for high-speed, low latency storage systems to complement large virtualization projects.”² Today, the company claims it has “moved the goalposts” in the way storage is used to support increasingly demanding computer systems and is widely regarded as one of the upcoming “it” companies in the industry. According to some of its own marketing pitches, WhipTail is “enabling technology to accelerate performance in high value applications while maintaining or lowering operating costs.”³

With more than 100 customers and spectacular results in just a few years, WhipTail is currently facing the challenge of handling its own aggressive growth and preparing to expand the company’s operations accordingly. “We need to make sure we don’t stifle our own growth. If we’re not prepared to go big, we’ll end up hurting ourselves,” Martin Adamec, WhipTail’s new Manager of Interface Engineering said.

¹ *Accelerating Performance with the XLRr Flash-Based Storage Array*. 4 May 2010. White Paper - WhipTail Technologies, Inc.

² <http://www.whiptail.com/company/bios>

³ WhipTail – Solid State Snapshot, Naseem Rochette/ L&L, December 12, 2011

Industry Overview: What Does Storage Do?

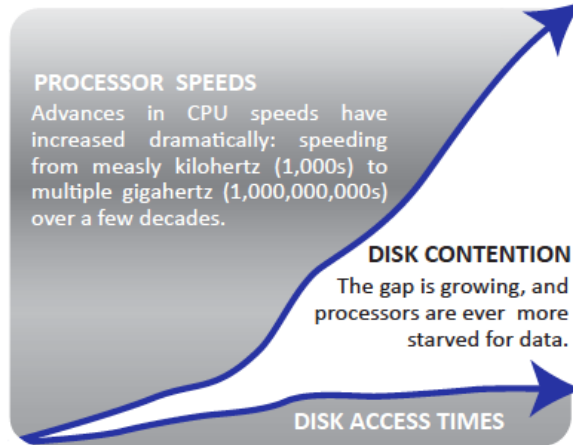


Figure 1: The performance gap between storage and processors

The significance of WhipTail's technology offering can only be understood in the context of what storage means to businesses everywhere and how storage has worked for those businesses in the past.

The term "storage" as used in the field this capstone discusses refers to

more than simply a place to store data. Storage is what enables computers to function and powers the increasingly complicated applications performed by modern processors. However, the performance ability of central processing units (CPUs) has grown exponentially faster than that of complementary hard disk drives, leading to an ever-widening

performance gap. This performance gap is forcing companies to obtain more and more storage, which is expensive both to purchase and maintain.

Simultaneously, overbuying storage only marginally increases performance with percentage gains generally staying

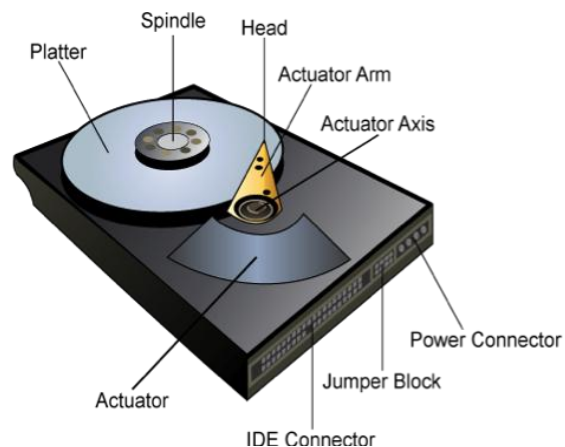
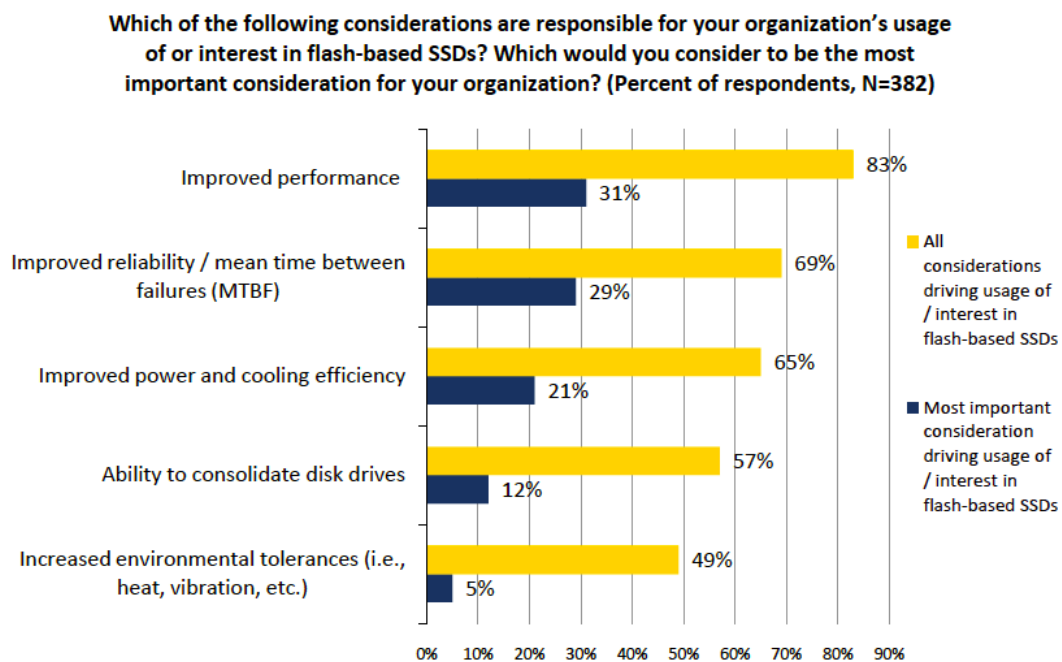


Figure 2: The general structure of an HDD

in the single digits. There is a clear need for better performance, but that need cannot be met by the widely-used hard disk drives because of limits placed on these devices by the nature of their structure.

Hard disk drives consist of moving parts, as illustrated by Figure 2. The actuator on an HDD device physically rotates and is therefore limited by laws of physics and cannot exceed its current speed of 15,000 rotations per minute (there has not been an improvement in this level of performance in 15 years).⁴ Therefore, the future of storage cannot rely on HDDs and the industry is turning towards solid state as a solution to IT bottlenecks. Companies are increasingly turning towards SSDs for a variety of reasons, as illustrated by the figure below.



Source: Enterprise Strategy Group, 2011.

⁴ *Accelerating Performance with the XLRr Flash-Based Storage Array*. 4 May 2010. White Paper - WhipTail Technologies, Inc.

Relevant Terms

An understanding of the following terms is relevant and necessary to understand both storage industry in which WhipTail competes and the specific advantages of its technology.

- **IO/IOPS:** Input & Output/Input/Output Operations per second. This is a benchmark for performance and measures read/write capability
 - When you can't get a sufficient amount of data in or out of a server or storage array, you will experience an IO bottleneck which leads to serious performance problems
- **Read/Write Capability:** potential to read and write to drives almost concurrently; key measurement of performance; in layman's terms, this means the drive can both receive and transmit information
- **Types of solid state memory:**
 - **NAND Flash:** stable type of memory used by USB flash drives and a variety of other devices; type of solid state used by WhipTail
 - **DRAM:** Dynamic Random Access Memory; faster than NAND but expensive and unreliable (loss of power while using DRAM will cause loss of data)
- **Latency:** refers to the amount of time it takes for data to move; major operational constraint of HDDs which have latencies up to 100 times larger than SSDs
- **SLC/MLC:** Single-level cell/Multi-level cell; refers to how much data can be written to one memory cell; SLC is faster but holds less data and is therefore too

expensive for large-scale enterprise use; WhipTail improved the way MLC is used to take advantage of its lower cost by making it suitable for enterprise use

- **Array:** refers to all the makings of a system offering (i.e., WhipTail sells an array that includes software and support, not just the SSD itself)
- **SAN:** storage area network; refers to storage arrays that are connected to work together as one unit
- **Virtualization:** similar to the ideas of cloud computing, virtualization is the process of creating a “virtual” version of a part of an IT system as opposed to an actual, physical one; in the case of Virtual Desktop Infrastructure, a company could set up a framework in which all employees have their own “desktop”, but interact with a centralized host computer, rather than each individual having their own physical computer at their desk
 - VDI can save companies immense amount of money by centralizing their IT infrastructure, decreasing maintenance costs (since the host computer is maintained instead of numerous individual machines) and protecting data; However, deploying VDI requires high performance storage that can’t be achieved through HDDs at an affordable cost and is thus a prime candidate for SSD

The storage solutions offered by WhipTail use solid-state drives (SSDs) to deliver drastically faster speeds than the traditional hard disk drives (HDDs) that were at one point a part of every computer.

SSDs use flash memory chips in place of traditional components included in HDD storage systems. The result is that memory speed is increased to just billionths

of a second, as opposed to the thousandths of a second offered by traditional solutions. In practical terms, this means that reports that would have previously taken hours to run can be done in a matter of minutes. More broadly, it means that companies employing SSD technology can significantly increase the performance of their IT systems and as a result significantly increase the efficiency of their employees and operations as a whole.

The structure of SSDs differs completely from HDDs by eliminating the use of moving parts in the storage drives. The elimination of spinning disks and actuators used in HDD technology offers a myriad of cost saving and efficiency benefits including:

1. Faster data retrieval

- .1 milliseconds for SSDs compared to up to 10 milliseconds for HDDs

2. More consistent read performance

- SSDs don't rely on a rotating disk, the movement of which can be a liability due to mechanical failures

3. Faster boot and application launch times

- SSDs don't need to wait for parts to move, which speeds up the start-up process; This is especially significant during times of peak usage ("boot storms") such as mornings when many employees are turning their systems on at once which can lead to system crashes or reduced performance

4. Greater longevity and reliability

- SSD are rugged enough to withstand extreme shock and vibration – HDD mechanical components are quite fragile

5. Reductions in Power Consumption & Heat Dissipation

- SSDs consume about a third of the power of HDDs and unlike them run completely silent while dissipating less heat since no moving parts are present

The above benefits together mean that one SSD unit can perform the work of four or more HDDs. Simultaneously, using SSD storage creates cost savings of about 90% compared to comparable traditional storage.

In practical terms, using SSD storage will solve a variety of IT problems faced by a majority of businesses– slow response times when using databases in the work place, lagging while running reports or working with software applications, system crashes, unreliable email applications, multi-tasking, online transaction processing, etc.

Aside from boosting traditional applications, SSDs are also suitable for supporting virtualization technology, which is increasingly sought by businesses in an effort to decrease IT and personnel costs. Virtualization allows companies to replace the traditional “one computer per employee” system with one in which an external hard drive off-site hosts the computers, eliminating the need to purchase a separate tower for every employee. This decreases equipment costs while simultaneously saving labor since maintenance isn’t needed every time an individual computer breaks down. The hardware for virtualization has been

available for some time, but the performance limitations of HDD storage made it difficult to implement. With the entrance of SSD onto the storage scene, virtualization is now a realistic and accessible IT tool.

WhipTail's Product – The XLR8r

The WhipTail team understands SSD application requirements and has years of experience supporting the latest MLC flash drives in production environments. If you're planning a VDI deployment or you've run into an IO performance problem that can't be met cost effectively with your existing disk array, ESG Lab recommends that you schedule a call with the SSD experts at WhipTail.

Enterprise Strategy Group, August 2011

Historically, only businesses with a budget robust enough to handle the high cost of SSD could benefit from its implementation. Revolutionizing the industry, WhipTail's signature SSD

solution, the XLR8r provides **all of the benefits of SSD performance at an affordable price.**

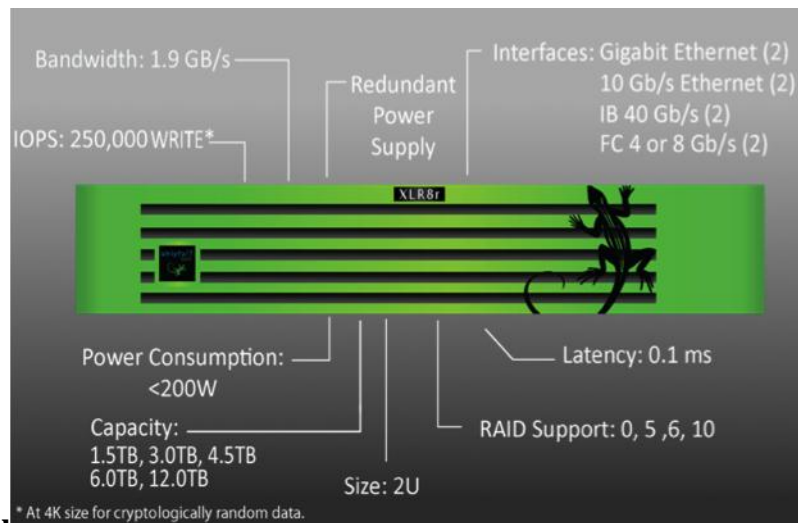


Figure 3: The XLR8r Specifications

The XLR8r runs on WhipTail's patent-pending Racerunner Operating System (RROS), which solves issues faced by previous attempts at designing a cost effective flash based storage unit. Such units struggled with write performance and longevity – the XLR8r has overcome both problems and is the only device of its kind that

actually performs random writes faster than random reads (a key benefit for virtualization projects). Thanks to RROS, the XLR8r is also the first enterprise-level device of its kind with a guaranteed longevity of 7.5 years, even with daily use.

To test the validity of claims about XLR8r's performance, the Enterprise Strategy Group (ESG) conducted detailed testing of the device at WhipTail's headquarters in August 2011. ESG is one of the world's top 10 analyst powerhouses whose mission is to "help organizations get to the bigger truth."⁵ The results of the testing were phenomenal (See Appendix B for full report). Among other exceptional findings, the ESG team confirmed that:

- A **single XLR8r** has the same performance as **348-871 standard hard drives**
- XLR8r has "**the fastest I/O response time** that ESG Lab has witnessed over more than eight years"
- XLR8r response times are **10 to 100 times faster** than traditional disks
- A **single XLR8r** can support the requirements of **3,787 heavy virtual desktop users**
- The architecture of XLR8r makes it a self-healing SSD that **never needs to be turned off**

The longevity and peak-time performance of XLR8r also significantly exceeded those of comparable solutions and tests of simplicity confirmed that the XLR8r is **ready to use in only 10 minutes and 3 mouse clicks**.

⁵ <http://www.enterprisestrategygroup.com/about-esg/>

The cost savings and performance increases provided by an XLR8r solution are of immeasurable value to the ever-increasing budgets of corporate IT departments. WhipTail offers the XLR8r starting at only \$49,000 – a miniscule amount compared to the cost of the hundreds of standard drives needed to achieve the same performance.

Case Studies

Internal and external testing proved the validity of WhipTail's claims about its technology, but even more important are its results in the field. The following is a review of some of the case studies by WT's actual customers.

Finkelstein & Partners⁶

Finkelstein & Partners is an injury law firm founded in 1959 that now boasts a staff of over 300 and a list of hundreds of thousands successfully closed cases over the years.⁷ When the firm realized it's time to update the design of their IT infrastructure, they turned to WhipTail's SSDs for help.

Finkelstein & Partners' biggest issue was overspending on their storage to increase capacity and performance – they were constantly adding capacity without a healthy performance return on the investment. Simultaneously, Finkelstein wanted to take advantage of virtualization, which is quite performance heavy and left the firm searching for a solution that was suitable yet affordable. After considering

⁶ *Finkelstein & Partners Selects WhipTail Solid-state SAN for Virtualization Infrastructure*. Whippany, NJ: WhipTail Tech. Print.

⁷ <http://lawampm.com/about-us.html>

purchasing 14TB of HDD storage, which would have allowed the VDI to function but not increase performance at all, Finkelstein purchased the hybrid version of WT'S XLR8r for the same cost, with spectacularly higher results. After putting the system to work, John Pasqualicchio, Senior Systems Administrator at Finkelstein concluded that:

"In segregating Exchange 2010 to WhipTail's XLR8r, we've seen a huge increase in the speed and response time, and with the inline data deduplication, we were able to mitigate our overall capacity needs to a major degree. The XLR8r has become the key element of our virtualization strategy."

The Pensions Trust⁸

The Pensions Trust is a UK-based pensions fund with over 147,000 members from over 4,300 non-profit organizations.⁹ The Trust was experiencing issues after moving with deploying VDI with a VMWare solution as the company's storage at the time could not handle the virtual requirement. This translated to problems such as customer complaints due to a slow system as well as performance problems during anti-virus scans and other application activities. Like Finkelstein, The Pensions Trust quickly realized that increasing storage performance by adding disks would be both inefficient and expensive.

The Pensions Trust turned to WT in large part due to the high write IOs offered by the XLR8r. The Trust found that using the Virtual Desktop XLR8r, it could run concurrent applications on its VDI that would have previously caused a

⁸ UK based The Pensions Trust Selects WhipTail Solid-state SAN array for VMware View Deployment. Whippany, NJ: WhipTail Tech. Print.

⁹ "About Us." *The Pensions Trust*. The Pensions Trust, 2010. Web. 23 Apr. 2012. <<http://www.thepensionstrust.org.uk/TPT/website/AboutUs/AboutUs.htm>>.

customer service nightmare due to a flood of incoming performance complaints.

Darren Bull, the Business Support Manager at The Pensions Trust concluded that:

"Since we have implemented the XLR8r users have stopped mentioning any slowness with our VMware View deployment. Helpdesk calls have reduced as a result. Most of the time our storage graphs are a flat line at zero latency. At its slowest it has always been much quicker than our old SAN on its best day."

The Competition

The uniqueness of WhipTail's technology means the company does not currently have any direct competitors in the storage industry, but there are larger, better-known firms with similar solutions who do compete for some of WhipTail's business. Below is a brief analysis of these firms and the potential threat they pose to WhipTail in the future. However, it should be noted that the SSD market is experiencing rapid growth. Therefore, while the existence of competitors must be considered, the market will be able to handle several successful firms and the success of one thus does not necessarily equal the demise of another. In addition, WT claims its "low price point and rich feature set – which includes snapshots, replication and high availability – provide differentiation in the market."¹⁰

Fusion-io

Fusion-io has been ranked as the number one SSD company by SSD market analysts at Storage Search for 13 quarters in a row (WhipTail was ranked 11th on the most recent list and debuted on it last year).¹¹ According to its website, Fusion-

¹⁰ Baltazar, Henry. *WhipTail Aims to Give VDI a Solid-state Boost*. Rep. 451 Group, 2011. Print.

¹¹ Kerekes, Zsolt. "The Top 20 SSD (solid State Drive) Companies." *SSD Thought Leadership Brought to You by StorageSearch.com*. Storage Search, 10 Apr. 2012. Web. 12 Apr. 2012. <<http://www.storagesearch.com/ssd-top10.html>>.

io provides a variety of hardware and software solutions and pioneers a process called data decentralization to lower latency by moving data closer to the CPU where it is processed.¹²

FIO has serious advantages over WhipTail in certain areas, such as having its products validated by enterprise giants such as HP and Dell.¹³ In 2009, Steve Wozniak joined FIO as Chief Scientist, adding both expertise and “star power” to its ranks. Furthermore, FIO was one of the first companies to heavily promote enterprise-level use for SSDs and has a several year “head-start” on WhipTail in establishing a reputation in the industry (they launched its first SSD in 2007).

However, because FIO and WT offer different types of SSDs, they don’t compete with each other *directly*. As such, FIO poses a challenge but not a roadblock to WhipTail’s advancement, particularly if WT continues to do a great job of distinguishing itself from other SSD companies. Simultaneously, WT has the advantage of being located in northern New Jersey, a short drive from New York City, which is a much more competitive location than FIO’s headquarters in Salt Lake City, Utah. Lastly, Fusion-io’s technology fails to address the longevity problems of flash memory, a problem that WT solved with its operating system that makes its SSDs last longer than a lot of the infrastructure they support.¹⁴

¹² "About Fusion-io." *Company:: Fusion-io*. Fusion-io. Web. 12 Apr. 2012. <<http://www.fusionio.com/company/>>.

¹³ Kerekes, Zsolt. "Who's Who in SSD? - Fusion-io." *SSD Thought Leadership Brought to You by StorageSearch.com*. Storage Search, 2 Apr. 2012. Web. 20 Apr. 2012. <<http://www.storagesearch.com/fusion-io.html>>.

¹⁴ Niu, Evan. "Should You Buy, Sell, or Hold Fusion-io?" (*FIO*). The Motley Fool, 23 Feb. 2012. Web. 21 Apr. 2012. <<http://www.fool.com/investing/general/2012/02/23/should-you-buy-sell-or-hold-fusion-io.aspx>>.

Violin Memory

Violin Memory is number two on the Search Storage list of top SSD companies and also the company that WT CEO Dan Crain refers to as the closest one to a “real competitor” for WhipTail.

Violin sells a flash-based memory arrays (WT’s offerings are also flash memory arrays) but at a scale much larger than WhipTail. The company was founded in 2005 and in just 7 years grew into what some call “a force to be reckoned with within the storage world.”¹⁵ Not only is its product offering similar (at least in appeal, though functionally different) to that of WhipTail, but Violin has completed five rounds of funding in the last two years, all in the area of \$50 million. This money makes it easier for Violin to continue to improve and upgrade their products, making them a serious threat. Furthermore, Violin is expected to go public later this year with an IPO at an astounding \$800 million.

The “bright side” of Violin’s existence for WhipTail is that while the company is doing well at the moment, it struggled after releasing its first product in 2007 and was forced to turn its operations inwards to regroup and rework its product, a serious failure on the part of its management. This could suggest that Violin is not quite as solid of a company as industry media seems to believe right now. It also

¹⁵ Harris, Derrick. "Why Violin Memory Is worth Billions in An IPO." *GigaOM*. GigaOM, 30 Mar. 2012. Web. 20 Apr. 2012. <<http://gigaom.com/cloud/why-violin-memory-is-worth-billions-in-an-ipo/>>.

means Violin has a slightly tarnished slate to compete with WhipTail's largely problem-less entry into the market.

According to WhipTail's own view, Violin is also not strong in the virtual desktop infrastructure (VDI). As WT focuses on marketing its products as perfect for deploying VDI, it distinguishes itself from Violin in that area. Furthermore, the structure of Violin's drives means they have to be taken offline to repair.¹⁶ WT drives can be replaced, giving WT a strong competitive advantage that the company should continually highlight in future marketing efforts.

Pure Storage

The competitive effect of Pure Storage is hard to determine, but could be significant. The company spent a long time raising significant amounts of capital and creating buzz over its flash array, but only released its generation one product this year. However, the structure they currently use for their array involves a two-part data reduction process involving a controller that will likely create bottlenecks that will limit performance. A controller is the processor of an SSD and thus one of its most key and necessary parts.¹⁷ WhipTail uses a similar two-part structure while avoiding controller bottlenecks, giving it a clear competitive advantage over Pure. However, since Pure has a lot of capital to work with and has had plenty of time for research, it remains a company that should stay on WhipTail's radar in the future.

¹⁶ WhipTail – Solid State Snapshot, Naseem Rochette/ L&L, December 12, 2011

¹⁷ Rent, Thomas M. "SSD Controller." *StorageReview.com*. 9 Apr. 2010. Web. 20 Apr. 2012.
<http://www.storagereview.com/ssd_controller>.

The Next Step

*"In my more than two and a half decades in the technology industry, I've never seen a young company with such an outstanding technological advantage. What attracts me to WhipTail and impresses me the most is the Company's work ethic and focus on its clients, as well as the ability to offer them affordable solutions that can radically transform business system performance."*¹⁸

Dan Crain, CEO, WhipTail, January 31, 2011

Most of WhipTail's development thus far has focused on designing a top-tier product, but with success stories adding up, the company is experiencing serious growth. After starting off with only five employees, WhipTail now boasts a staff of over 80 professionals in the United States, Great Britain and India. The executive team includes:

Daniel Crain	Chief Executive Offices
Cameron Pforr	President and CFO
James Candelaria	Chief Technology Officer
Maxwell Riggsbee	VP of Product Management and CMO
Brian Feller	VP & General Manager, EMEA
Andy Flesch	VP & General Manager, Americas

The financial state of the company is currently healthy – in January 2012 WhipTail procured a second round of financing, led by RRE Ventures, a venture capital firm based in New York (although the total amount of funding was not

¹⁸ WhipTail Technologies. *Dan Crain CEO, WhipTail Technologies*. *StorageNewsletter.com*. 31 Jan. 2011. Web. 18 Mar. 2012. <<http://www.storagenewsletter.com/news/people/dan-crain-ceo-whiptail-technologies>>.

disclosed).¹⁹ While this funding should be used to continue developing the features of WhipTail's solution, it is my belief that other areas of the business are in dire need of financial and management attention if WhipTail wishes to retain its industry leader status.

Addressing Concerns and Potential Challenges

The issues briefly analyzed below consist of issues that should be considered by management for future planning purposes. While not all are of immediate concern and therefore not the subject of the specific recommendations discussed later in this capstone, they are nevertheless important and therefore necessary to mention in a discussion of WT's future.

Capacity

Currently, most of the parts for WhipTail's products are manufactured in Boston, MA, with final assembly occurring at the company's New Jersey headquarters. This system allows for WT to keep a close eye on the assembly to both protect proprietary information as well as review the quality of the final product, but it is not a system sustainable in the future. WT should explore other options for manufacturing processes to increase their capacity, particularly given the expected release of their Generation 2, enterprise-level product. This should include researching options for licensing the production of WT devices to an outside party or expending operations to include a larger assembly section in place of the

¹⁹ <http://www.marketwatch.com/story/flash-based-storage-leader-whiptail-secures-series-b-funding-round-2012-01-17>

current arrangement. WT should also ensure that current suppliers of materials are ready and willing to supply the increased amount and type of parts expected to be necessary once the company's new products take off.

Customer Service

One of the selling points WhipTail frequently uses is the fact that it provides a storage *array* rather than just the physical product. This includes a high-level of care and support that such a selling point with lead customers to expect. Simultaneously, an increasing number of customers and a new product release will make the task of maintaining that level of care more difficult to maintain. On its website, WhipTail currently advertises 24/7/365 support for all its customers including a guarantee of a one hour turnaround on service calls during business hours (defined as Monday through Friday, 8am to 6pm) and no more than two hour turnaround outside of those hours. This type of support will be increasingly difficult to provide and handle as the number of WT customers grows, particularly if the company also continues expanding overseas. WhipTail should look ahead and come up with an appropriate timeline for hiring and training engineers to handle the support calls to avoid tarnishing its reputation by failing to assist customers promptly.

Image

In the years since the company's creation, WhipTail has failed to create a consistent, professional image to project onto the industry and potential customers.

While this is understandable given the company's focus on its unique and complex product, it is also a serious weakness with potentially significant consequences. Failure to quickly settle on a focused marketing approach can dilute WT's brand, hurt its brand recognition and generally make the company appear less appealing to investors and customers.

Recommendations

The following recommendations consist of a variety of initiatives that should be considered as soon as possible to facilitate WhipTail's future growth. Although an analysis of any business venture leads to a long list of potential recommendations, those listed below were found to be of most importance to WT and therefore most worthy of management attention. While this capstone is partly an academic work, the recommendations are the author's conclusions based on significant research and are thus written in first person, as would be found in a consultant's report commonly encountered in the business world.

Develop a consistent marketing strategy

"At the end of the day buyers will choose the vendors they believe they can trust. Those will include the brands they personally recognize from editorials, advertisements, trade shows, sales pitches (personal and email) and experience. They'll also rely on recommendations — resellers, consultants, analysts and their peers on social media sites."

David X. Lamont, Marketingsage²⁰

²⁰ Lamont, David X. "A Strategic Marketing View of Flash Memory Products." *Marketing Storage*. Marketingsage, 14 Aug. 2011. Web. 24 Feb. 2012.

WhipTail has the necessary technology to stay at the forefront of the storage industry, but its presence and advance are being hampered by a lack of focused marketing strategy and a website that desperately needs to be revamped. The company's less-than-perfect presentation is being noticed within the industry and could prove a serious issue once WhipTail begins courting clients on a larger scale. Well-known SSD blogger Zsolt Kerekes alluded to this issue in his January 2012 review of WhipTail in which he refers to assumptions about WhipTail "formed from earlier contacts with the company (and looking at their web site)."²¹ Kerekes also points out that WhipTails current wording in describing the company overreaches in describing how unprecedented their technology is – while the XLR8r is unique, WhipTail was not the first company to offer SSD technology in general. WhipTail needs to avoid appearing as though it's making such a claim to prevent loss of credibility and potential legal liability. A focused and controlled marketing plan will help prevent similar errors in the future, complement WhipTail's aggressive growth and keep the company ahead of competitors in all aspects of the storage business – not just the technology itself. The following are some specific tasks to undertake regarding WT's marketing efforts.

<<http://marketingstorage.wordpress.com/2011/08/14/a-strateic-marketing-view-of-flash-memory-products/>>.

²¹ Kerekes, Zsolt. "Who's Who in SSD? - WhipTail." *Storage Search*. Jan. 2012. Web. 24 Feb. 2012. <<http://www.storagesearch.com/whiptail.html>>.

Develop additional case studies using the experience of existing and upcoming customers

Due to the overwhelming success of the case studies reviewed earlier in this capstone, it is also recommended that WhipTail continue utilizing case studies as both a marketing and market research tool in its future growth. From a strictly advertising perspective, these case studies can be turned into marketing materials as well as function as a source of positive sound bites to use in sales pitches, during conferences or trade shows, etc. From a market research perspective, putting focus on conversing with customers will keep WT abreast of developing needs and desires in the industry. This can help fuel product development and market positioning and prevent competitors from encroaching on WhipTail's market share. However, I believe that WT would benefit from altering the design of how the case studies are currently presented (see Appendix A for an example of the current case study pamphlets)

Although the current case study design seeks to highlight the success of the XLR8r in practical, real-life situations, it does so in a slightly too confusing manner. The text of the flyer contains too much repetitive information about the specifications of XLR8r performance – information that a potential customer would likely have already seen. What the focus should be on is more information on how, when and why a particular company chose WT for its product and testimonials from several key employees involved in deployed the XLR8r and any VDIs or databases associated with it. For an added bonus, WT should seek to obtain as many “numbers” from the customer as possible to include on a case study summary: how

much did the customer save (compared to the price of an alternate solution as well as in decreased maintenance costs, etc.). This type of information will give potential customers a much better sense of how the XLR8r does “in the field.” Furthermore, WT should shy away from using purely illustrative stock images in the design of these – and any other – marketing materials, as they take away from the professional presentation of the company and add no value to the WT or the customer. In other words, anything included in the flyer or pamphlet should have a specific purpose and convey helpful information – anything less than that is a waste of time and space.

Redesign the company's logo

WhipTail recently – and quietly – moved away from the logo it utilized for much of its existence. The logo was changed to that found at the top of this capstone from the original version on Figure 3:



Figure 3: WhipTail's original logo

Interestingly enough, the original version of the logo is arguably more creative and professional looking than the current version. It is unclear why the company settled on this move, but it does show that WT has struggled with how to present itself to the outside world. Since WT also dropped the word “tech” at the end of the logo, it is possible the firm is moving away from the modern, spunky appeal it adopted in its early years. However, it is my belief that keeping a sort of “fresh” image would actually help differentiate WhipTail from its competitors in a positive matter. After all, Fusion-io is one of the top companies in the SSD field and its highly modern appeal has helped it become a highly successful, publicly traded firm (recently trading at 160 times its earnings).²²

²² Niu, Evan. "Should You Buy, Sell, or Hold Fusion-io?" (*FIO*). The Motley Fool, 23 Feb. 2012. Web. 21 Apr. 2012. <<http://www.fool.com/investing/general/2012/02/23/should-you-buy-sell-or-hold-fusion-io.aspx>>.

In my review and research of WT, I came across the following image used by WT's British extension:



I believe this image should be a top competitor for being the basis of WT's new logo for a variety of reasons.

First, the image is highly original – it reflects the company's name (a whiptail is a type of extremely fast lizard) in a clever, original way that could become a readily recognizable trademark.

Second, it's more than just a fancy font displaying a name – the lizard is made of words reflecting the what the company is all about: solid state storage, performance, data center, etc. It's a great work of graphic design that would go to waste without more prominent use.

Lastly, using this image in a logo would allow WhipTail to stick with its original green color scheme. The re-design of its website as of the submission of its capstone has the company working with shades of blue and grey that are a much milder color scheme than previously utilized. I believe that WT should consider keeping its original color scheme, again for the purpose of differentiation. The green color goes with the company's theme, it could make marketing materials stand out, it would complement a "green" marketing strategy (discussed below) and it would allow it to keep the current design of the shell of its products as show below:

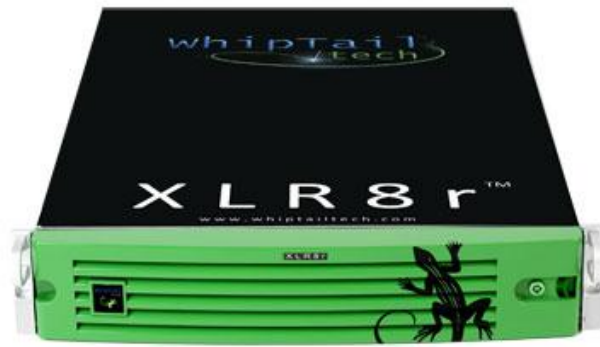


Figure 5: The outside shell of an XLR8r

Implement organizational procedures and processes to develop a sustainable corporate structure

WhipTail's CEO does not want to excessively formalize the organizational set-up of the company. "Too much formalizing makes companies be lethargic," Crain said.

However, the growth from a small business to an international venture is difficult. Chaos due to inefficient organization increases that difficulty and can seriously stunt a company's growth, harm its reputation and drive sales towards its competitors.

WhipTail currently lacks the internal organization of a large company. Therefore, in order to handle its growth and efficiently manage its operations in years to come, the company needs to develop policies and procedures for all aspects of the business. This includes developing a clear organizational network and line of command, developing a mission statement and a set of objectives, creating a structured accounting department, etc. A meeting of general management as well as key personnel from all departments would serve as a good starting point for

identifying a specific list of necessary procedures and potential steps for developing those procedures.

Pursue the college and university market as a source of future sales

Virtually any business could benefit from the storage array offered by WT and the list of potential customers is therefore quite long. However, colleges and universities are uniquely suited for the use of SSDs. Because of the large size of their IT departments and the heavy amount of data and applications they need to support, universities are prime candidates for an SSD deployment. In addition, they are more likely to have a sufficient amount of “spare” fund available thanks to endowments, high tuition rates, etc. to be willing to give an SSD solution a try. Therefore, WT should direct its sales personnel to target universities in their respective geographical areas and reach out to appropriate university representatives to put WhipTail on their minds – and eventually their budget.

Pursue the “go green” movement and environmentally conscious companies

Using WT technology means drastically downsizing a company’s data center and reducing energy usage and space by up to 90 percent.²³ I believe this benefit has not been highlighted enough in WhipTail’s marketing and creates a unique opportunity to pursue the market of environment-friendly firms. Some of WT’s already existing customers are realizing and appreciating this benefit – one of the

²³ *Accelerating Performance with the XLRr Flash-Based Storage Array*. 4 May 2010. White Paper - WhipTail Technologies, Inc.

reasons Finkelstein & Partners (case study discussed earlier) chose SSDs for their infrastructure was that they are a “greener” option.²⁴

The market for companies with green products is growing as consumers and producers alike become more aware of the footprint human actions are leaving on our environment. In 2008, a member of the Manhattan Chamber of Commerce in New York City started a committee to support green business. By 2011, the committee had 250 members and the city itself was donating money to support the growth of green businesses.²⁵ Seth Pinsky, president of the NYC Economic Development Corp was quoted in a 2011 NY Daily News article as saying that “Within the green sector, there are enormous opportunities for entrepreneurs,” a market opportunity WT should not let slip by.

Specific actions that WT should undertake to take advantage of the environmental movement include seeking out bodies or organizations that certify or recognize environmentally-friendly companies as a way of marketing their product as well as gaining visibility among environmentally conscious companies (which could increase their accessibility for potential customers looking to make their IT operations greener). For example, since 2005, EcoFirms.org has been maintaining a directory of eco-friendly companies to connect like-minded companies and customers across the world. According to the company’s own website, EcoFirms.org “is specifically designed to serve as a marketing and promotional tool for our

²⁴ *Finkelstein & Partners Selects WhipTail Solid-state SAN for Virtualization Infrastructure*. Whippany, NJ: WhipTail Tech. Print.

²⁵ Furman, Phyllis, and Elizabeth Lazarowitz. "Environmentally Friendly Companies Go Green, Make Tons of Money in Energy-saving, Efficient Products." *New York Daily News*. 18 Apr. 2011. Web. 23 Apr. 2012. <http://articles.nydailynews.com/2011-04-18/news/29464911_1_clean-tech-green-economy-green-energy>.

member companies.” For a miniscule amount of money for a company WT’s size (\$150 for a lifetime membership), WT would be included in the directory with room to feature product ads, YouTube videos, company contact information and links to company websites. In addition, EcoFirms.org uses the funds from company memberships to preserve rain forests in Ecuador – giving WT something to start building a corporate social responsibility program, which is increasingly expected of large, successful firms.

APPENDIX A: CASE STUDY EXAMPLE

Case Study | WhipTail Tech



“ ...We were also experiencing extremely long delays when conducting statistical analysis of datasets. ”

Tony Marando
Manager of Technical Services
inVentiv health

inVentiv Health Selects WhipTail XLR8r to Improve Citrix Environment Performance

New Jersey-based inVentiv Health, Inc. is a global provider of value-added services to the pharmaceutical, life sciences and healthcare industries with over \$800 million in revenue and 5,200 employees.

The Challenge:

- ✦ Increase critical application performance
- ✦ Accelerate speed of reports for analysis
- ✦ Optimize virtual environment
- ✦ Minimize growing HDD sprawl

inVentiv health was suffering from poor performance in one of its mission critical applications. Running a virtualized Citrix XenApp 6 housed on a VMware ESX environment, the company's SAS (Statistical Analysis System) was not performing at an acceptable level. "We had the application running on our traditional hard disk drive fiber channel storage array, but we had endless user complaints, and we were fielding consistent calls and having to reboot the servers," noted Tony Marando, manager of technical services at inVentiv Health. "We were also experiencing extremely long delays when conducting statistical analysis of data sets; what should have been a simple task was taking over 4 hours."

Highlights:

- ✦ Virtual Environment running 4X faster with XLR8r
- ✦ Improved performance gives competitive advantage
- ✦ Statistical Analysis System performance optimized
- ✦ Dramatic decrease in help desk calls & user complaints



XLR8r