SwiftTest becomes Load DynamiX as it targets enterprise for storage performance validation

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Privately held SwiftTest has spent the last four years selling its storage load generation and I/O measurement appliances to storage OEMs looking to better understand how different workloads affect the performance of storage systems. The company says the success of this experience has sufficiently emboldened it to expand its focus to include enterprises looking to stress test their storage infrastructures. Accordingly, the company is ramping up its profile in order to boost its awareness, and in the process has also given itself a new name – Load DynamiX – that better reflects its focus.

The 451 Take

For the typical storage systems supplier, Load DynamiX's proposition makes sense as a standard part of the product development process. However, by itself it's never going to turn the company into anything more than a useful niche supplier. By targeting enterprises and service providers, the company has become infinitely more interesting. Part of the attraction is that its workload generation appliances can theoretically be used for any one of a number of tasks, potentially making it an essential part of the ongoing infrastructure optimization process. This is particularly relevant at this point because enterprise storage requirements are expanding from a capacity and performance scale perspective, and because technologies like virtualization and Flash are complex.

Of course, its challenge is to persuade sufficient IT buyers that this is a problem worth investing a non-trivial amount in. Here, it's definitely too early to say, but at first glance Load

DynamiX is a company with an intriguing future ahead of it.

Context

Load DynamiX was formed in 2009, until now calling itself SwiftTest, to develop a range of 'extreme' load generation appliances that create workloads for storage and storage networking products. The company was started by a group of engineers from the storage, networking and protocol testing and measurement worlds. Founder and current chairman Richard Bush founded Identity Engines and Caw Networks, the latter of which was acquired by test and measurement specialist Spirent Communications in 2002. He also co-founded NAS pioneer Auspex Systems. CEO Phillippe Vincent is an engineer who has held senior positions at BigFix, IBM and Accenture. CTO and co-founder Leonard Sheiba founded VoIP pioneer ThinkingVoice Networks.

The company currently employs about 60 staff at its headquarters in Santa Clara, California, and has raised $13m to date over two rounds, the most recent being a $7.25m series B round in September 2012. That round was led by Azure Capital Partners and Kinetic Ventures. Other investors include Benhamou Global Ventures, Miramar Venture Partners, Core Capital Partners and Columbus Nova.

Strategy

The company's target market until now has been storage OEMs looking to better understand how different applications and workloads affect performance. Load DynamiX says these vendors have used the resulting insight to refine and further optimize their products. To date the company has secured relations with the great and good of the storage industry, from industry giants such as EMC, HP, Cisco, Dell, Hitachi Data Systems, IBM, Oracle and NetApp to startup specialists such as Cleversafe, Riverbed, Panzura and Nexenta Systems; about 30 in total.

However, over the last couple of years Load DynamiX says it has found that its product has started to be used in different – and potentially more interesting – ways. In addition to using it internally during product development, the company says storage OEMs have started to use its product as a competitive and validation tool in prospective enterprise accounts, as part of the product selection process. It cites one large US company, which was considering purchasing a large EMC Isilon NAS system. The prospect wasn't convinced by EMC's claims that the Isilon cluster could handle its demanding workload; EMC brought in Load DynamiX and was able to validate its assertions using the customer's own workload profile, and as a result won the business. In part motivated by such

successes, Load DynamiX recently joined the EMC Technology Partner Program.

So far Load DynamiX has established business with around 10 end-user organizations. Other examples include Web hosting giant The Go Daddy Group. The company has a large overall storage environment (27PB) and in the past had a patchy record when it came to validating new features, systems and capabilities. It decided to abandon its 'test in production and pray' strategy in favor of a more proactive testing process, and after experimenting with a variety of freeware tools – which it says neither scaled sufficiently nor were able to test some 'real' workloads (especially around metadata, which the company says can be over 90% of traffic, and file system calls) – has now standardized its storage testing on Load DynamiX. GoDaddy says it now uses storage validation on a daily basis for testing scenarios such as evaluating new features (e.g., de-dupe and compression), protocol evaluation (e.g., various NFS versions, CIFS vs. iSCSI), change management, density testing, product bake-offs and new architecture and technology evaluations. Other end-user customers include General Electric, Automatic Data Processing, Shutterfly, Wells Fargo and Ellie Mae.

Products

So what does Load DynamiX do, and how does it work? The company has developed a four-step methodology for applying customized I/O workloads to a wide range of storage systems. The first step in the process is to characterize the workload the customer is interested in emulating. It does this by gathering data from multiple sources – production statistics (from Perfstat, NFSstat, etc.) and packet captures (e.g., PCAPs, Workload Analyzer) – to build test suites that is says are realistic.

It then creates a production workload model using this data through a facility it calls Workload Insight Manager. This is modeled at a granular level, again to reflect the customer's environment, taking into account (for example) directory depth, folder structure, file size distribution, block/chunk size distribution and read/write direction. Importantly, Load DynamiX says it can perform this emulation without requiring a large number of servers/VMs to drive it.

Step 3 is to run the emulated workload against the target. It does this through a range of four 2U appliances that it has recently made available, and designed specifically for enterprise IT environments. The appliances are available in either10GigE and Fiber Channel flavors, although there's also an appliance that supports both. Between them they collectively support a wide range of protocols, including NFS, SMB/CIFS, iSCSI, FC, VTL, NPIV, HTTP, HTTPS, CDMI and OpenStack SWIFT (the emergence of the latter was the primary motivator for the company name change to avoid confusion). List pricing for the appliances ranges between $95,000 and $225,000.

The final step is to analyze the results to drive decision-making. Examples here include helping a customer whether to select the optimal product, decide between a block or a file-based storage system, how to best handle boot storms, test user limits, assess how to detect and prevent failures, and how to optimize purchasing by acquiring a 'right-sized' system.

Competition

It may be surprising that, despite the storage industry being one of the most competitive and fragmented segments of the IT systems landscape, the market for workload testing tools is still small. Indeed, there are few commercially available tools available, meaning that by far the most common competitor Load DynamiX has to counter is DIY scripts and freeware tools such as IOmeter and IOZone. While obviously low cost, Load DynamiX believes such tools are struggling to emulate real-life workloads and don't simulate important elements such as metadata. Additionally, since such tools typically generate workloads from VMs and servers, it is difficult to fully emulate real-world IOPS and connections. Those that do manage to recreate a representative workload often do so at great expense, and Load DynamiX says its 'performance validation lab in a box' approach is actually a more cost-effective approach.

One company that offers a commercial capability around storage workload generation is SANBlaze, which supports block-level, but not currently file-level, workloads. The giant of the workload testing space is Ixia; although it's known for its IP networking capabilities, it recently expanded into the storage space and is targeting storage systems developers, and is also expanding its horizons to target all manner of large enterprises and other organizations. So far Load DynamiX says it has not seen Ixia compete for business in either technology vendors or end-user enterprises, and Load DynamiX believes that its five-plus years' focus on understanding and emulating storage traffic with a high degree of realism provides it with a substantial technology advantage.

SWOT Analysis

Strengths

Load DynamiX's customer and partner base is impressive for a company of its stature, while it benefits from a storage-only focus and little direct competition.

Weaknesses

The company is virtually unknown outside the confines of its initial target market of storage 'stack' providers.

Opportunities

The company has a unique take on solving some intractable storage problems, while the emergence of Flash means there more interest than ever in IOPS comparisons.

Threats

Its biggest challenge in its effort to expand beyond its OEM niche may be to convince sufficient end users that this is a problem worth investing non-trivial sums to address.