



Research Report

The Virtual Instruments/Load DynamiX Merger: A Holistic View of How Application Workloads Work With Infrastructure

Executive Summary

In February, 2015, *Clabby Analytics* wrote a research report entitled “[Virtual Instruments: Analytics-based Infrastructure Management](#)” that described the infrastructure performance management (IPM) marketplace as well as Virtual Instrument’s VirtualWisdom and Probe offerings. Together, these offerings collect data on application workload behavior across systems storage and networks; then use analytics tools to look for trouble spots, as well as reporting tools to interpret analytics results in graphical form. These products impressed us because they make it possible for information systems to perform self-analysis, using systems resources rather than human resources to perform much of the complex analytics work. *We strongly recommended that enterprises looking to streamline application and infrastructure performance evaluate Virtual Instrument’s product offerings.*

In March, 2016, Virtual Instruments and Load DynamiX (a provider of storage performance analytics offerings) announced that they would merge. Further, the companies announced that they had secured \$20 million in investment capital that will be used to integrate their respective product sets, expand analytics offerings and realign sales forces. We see this merger as highly synergistic, providing customers with deeper analytical insights into workload performance and systems, storage and network behavior.

In this *Research Report*, *Clabby Analytics* describes what the merger of Virtual Instruments with Load DynamiX means to enterprise information technology (IT) buyers. In short, the combined environment will provide customers with a comprehensive, well-integrated environment that provides IT managers with the ability to monitor systems/storage and network behavior; perform workload analytics; model new application behaviors – and then test changes before production implementation. *We see the kind of functionality created through this merger as crucial for managing today’s private cloud environments as well as the evolving hybrid cloud environments of the future.*

What This Merger Means

Virtual Instruments is a proactive monitoring and analysis solution. The company’s product offerings provide continuous, real-time measurement of performance, health and overall utilization rates across servers (including virtual machines), network and storage devices. Using this information, IT managers and administrators can reduce latency, improve availability, proactively prevent outages, improve service levels and improve resource utilization.

Load DynamiX is a performance analysis/testing/modeling product that monitors, analyzes and simulates application behavior across storage file, block and object subsystems. Using this product, IT managers and storage developers can create models and conduct

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performance simulations (including advanced simulation for deduplication, compression, and metadata commands); perform change validation; troubleshoot storage issues; optimize storage configurations; and perform technical comparative evaluations. This product is useful to storage vendors because it allows engineers to develop and test new storage products in labs – and it enables vendors to benchmark workload performance. IT buyers like this product because it helps architects model performance characteristics across various types of storage (helping in the selection of storage media), and it helps IT buyers compare the storage performance of specific vendors (an aid in the vendor selection process).

The combination of these two environments makes each environment more intelligent.

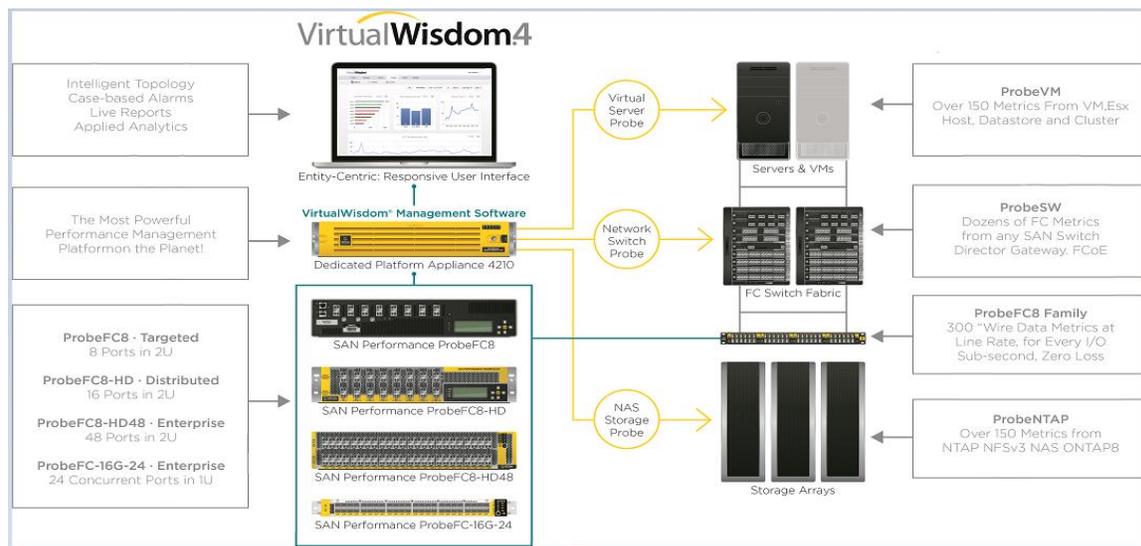
Load DynamiX users benefit from more systems/application data collected by Virtual Instruments being fed into the Load DynamiX analytics engine – complementing Load DynamiX workload analysis, modeling and load generation. The merger with Virtual Instruments also brings deeper fibre channel SAN insights, new analytics facilities and global services expertise to Load DynamiX users.

Virtual Instruments users benefit from deeper insights into SAN, NAS, SDS, Object and Cloud performance (Virtual Instrument's primary network expertise had been fibre channel focused – but now, with the Load DynamiX merger, Virtual Instrument users can gain new insights into iSCSI, NFS, SMB, CDMI, Amazon S3, OpenStack Swift/Cinder environments – and can more easily leverage all Flash array, software defined storage, hyper-converged and cloud environments).

Technically Speaking...

As described in last year's report, the Virtual Instruments management interface is known as VirtualWisdom (current revision 4.4). This interface ties into underlying VirtualWisdom management software that gathers data from three different types of “probes” (a virtual server probe, a NAS Storage probe and a network switch probe). These probes collect operations data from various devices using hundreds of different metrics. Analytics are applied to this data and results are generated in report form. (See Figure 1 for a depiction of the Virtual Instruments product family).

Figure 1 – The Virtual Instruments Product Family

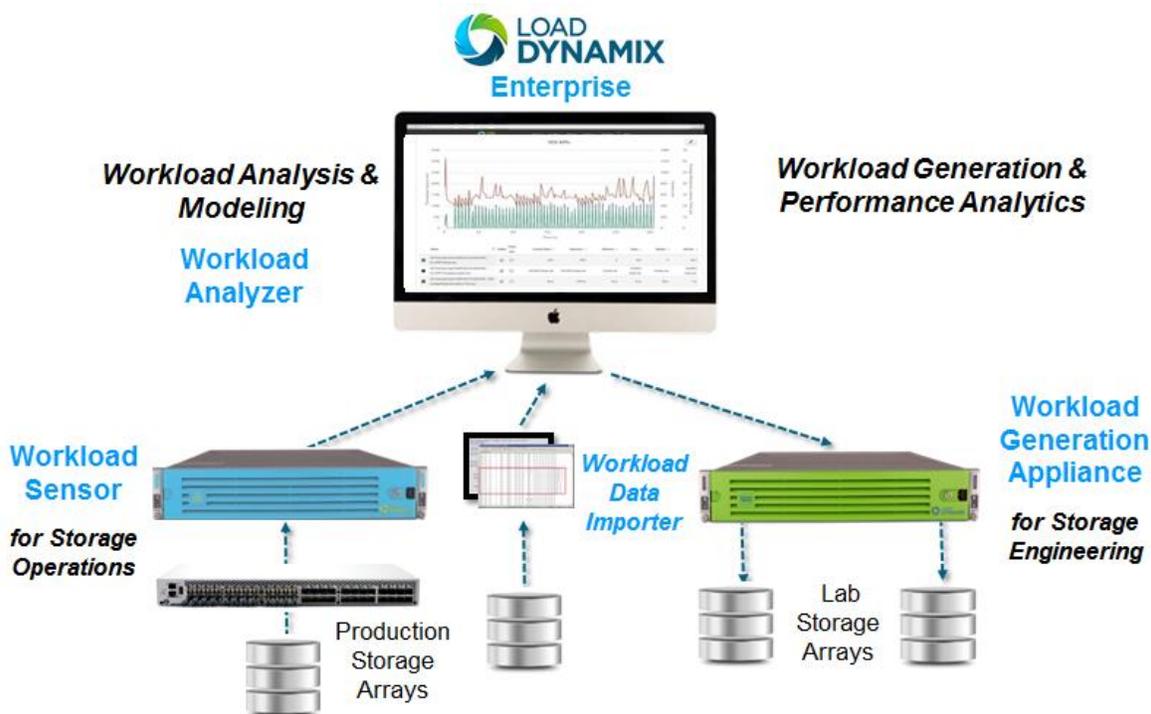


Source: Virtual Instruments – February 2015

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Load DynamiX Enterprise is the company's management interface. Operational data is collected from the company's "Workload Sensor" for real-time data or from their "Workload Data Importer" for historical data. It is then analyzed and modeled – then deployed on the company's "Workload Generation Appliance" to generate storage traffic based on the workload simulation data (See Figure 2).

Figure 2 – The Load DynamiX Product Set



Source: Load DynamiX – March, 2016

Together, these products help engineers, architects, and developers:

1. Analyze production storage workload profiles by measuring I/O performance;
2. Determine optimal storage systems and configurations for each workload; and,
3. Identify performance limits under a variety of workload scenarios.

Solution Use Cases

Load DynamiX Enterprise offers six distinct solutions designed to help users characterize, model and emulate workloads:

1. *Change Validation* – this solution process enables users (storage engineers, developers and administrators) to validate storage infrastructure changes in an offline, cost-efficient manner;
2. *Technology Evaluation* – this process helps users understand the performance implications of adopting software defined storage, flash storage, hybrid storage, object storage, OpenStack, Ceph, and other networked storage protocols;

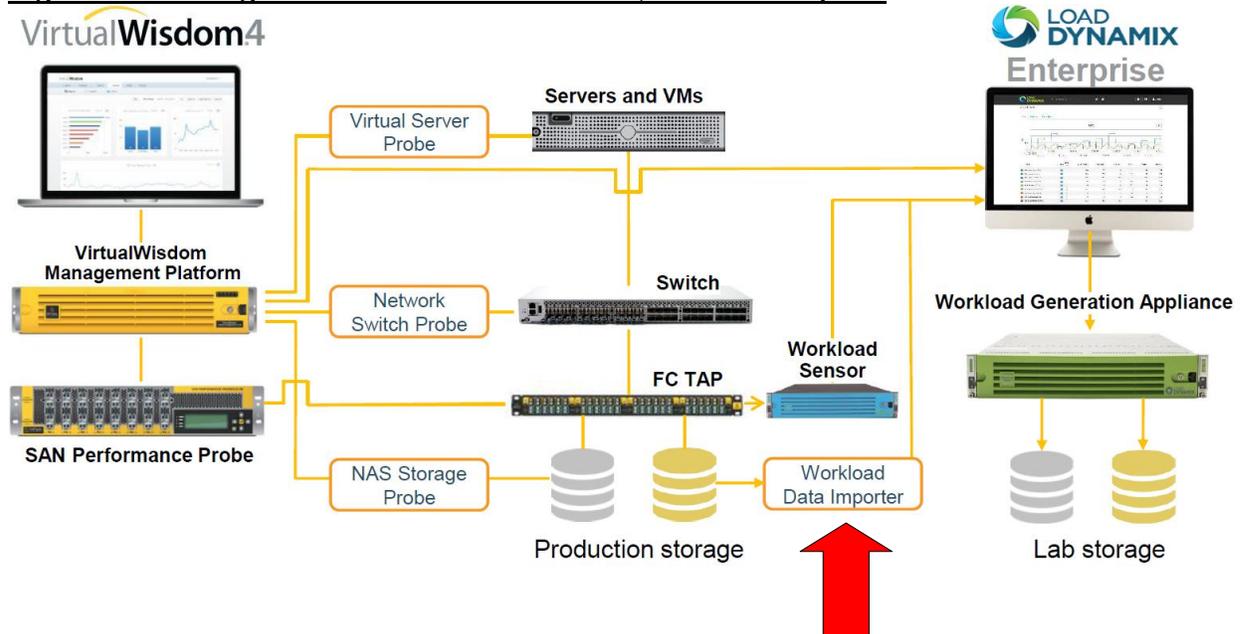
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3. *Product Evaluation* – This process enables users to compare storage system performance using workload simulations that resemble real-world production environments;
4. *Configuration/Optimization* – this process enables users to optimize the performance, reliability, and cost-effectiveness of their storage systems.;
5. *Troubleshooting* – with the Load DynamiX Workload Sensor (see Figure 2), users can speed up troubleshooting using real-time workload profiling and analysis of production SAN infrastructure; and,
6. *Flash Storage Evaluation* – this process helps IT executives determine whether the expense of Flash storage can be justified.

Linking VirtualWisdom with Load DynamiX Enterprise

Over time, we expect Load DynamiX Enterprise to be integrated with Virtual Instrument's VirtualWisdom management environment. But initially, the two products can be linked by importing data collected by VirtualWisdom through the Load DynamiX Workload Data Importer (see Figure 3). The Load DynamiX Workload Data Importer can accept data from multiple data sources through a straightforward application program interface (API).

Figure 3 – Linking VirtualWisdom with Load DynamiX Enterprise



Source: Virtual Instruments – March, 2016

Together, Virtual Instruments and Load DynamiX uniquely solve a key problem: enterprises need a holistic view of how their application workloads are interacting with the underlying infrastructure. No two workloads are alike, and every data center is unique; so regardless of whether companies invest in Flash, software-defined, cloud or converged technologies, Virtual Instruments offers them deep workload visibility and performance analytics to support their agile business environments.

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While Virtual Instruments' VirtualWisdom platform analyzes the performance of the production infrastructure for IT operations, Load DynamiX delivers the storage workload acquisition, analysis and modeling capabilities IT engineering and architecture teams need. Together, the technologies offer the best infrastructure instrumentation and performance analytics in the data center.

The \$20 Million Investment

HighBar partners, as well as several Load DynamiX investors, have combined efforts, bringing an investment of \$20 million to the merged companies. These funds are expected to be used to fund product integration, expand product offerings and spur additional hiring (in both development and sales) – and these funds bring financial stability to these companies.

Summary Observations

About five years ago we identified a subtle shift in the application performance management (APM) marketplace as we noticed APM vendors starting to integrate analytics into their product offerings. Shortly thereafter, we found systems management vendors doing the same – using analytics to sort through mountains of log files and other data looking for the root causes of problems and/or to perform predictive analytics. We then found vendors using analytics to improve infrastructure performance by using analytics to troubleshoot performance problems and develop new, more efficient workflows. Last year we identified Virtual Instruments as a shining star in the budding infrastructure performance management marketplace.

Virtual Instruments and Load DynamiX customers have continually asked for tighter integration between the two companies' products, and this merger responds to that demand. By merging with Load DynamiX, both companies' IPM offerings have been greatly improved. The merger of Load DynamiX with Virtual Instruments brings deeper fibre channel SAN insights, new analytics facilities and global services expertise to Load DynamiX users; meanwhile, Virtual Instruments users benefit from deeper insights into SAN, NAS, SDS, Object and Cloud performance.

Ultimately, however, we think the biggest winner in this merger will be the cloud management community. Managing application flow within private, public and hybrid cloud environments is extremely complex – and, all too often, overly reliant on human labor for troubleshooting and tuning. As IPM products become more sophisticated, machines are playing a greater role in managing themselves – troubleshooting, tuning themselves and predicting future events. The merger of Virtual Instruments with Load DynamiX is paving the way for even more effective management of complex, highly virtualized systems, storage and network infrastructures in the cloud.

Clabby Analytics
<http://www.clabbyanalytics.com>
Telephone: 001 (207) 239-1211

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