

VIRTUAL INSTRUMENTS WORKLOADCENTRAL **Free Cloud-Based Resource for Understanding Workload Behavior**

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Virtual Instruments, the company created by the combination of the original Virtual Instruments and Load DynamiX, recently made available a free cloud-based service and community called WorkloadCentral. The service is designed to help storage professionals understand workload behavior and improve their knowledge of storage performance. Most will find valuable insights into storage performance with the simple use of this free service. For those who want to get a deeper understanding of workload behavior over time, or evaluate different storage products to determine which one is right for their specific application environment, or optimize their storage configurations for maximum efficiency, they can buy additional Load DynamiX Enterprise products available from the company.

The intent with WorkloadCentral is to create a web-based community that can share information about a variety of application workloads, perform workload analysis and create workload simulations. In an industry where workload sharing has been almost absent, this service will be well received by storage developers and IT users alike.

Read on to understand where WorkloadCentral fits into the overall application and storage performance spectrum...

STATE OF THE INFRASTRUCTURE AND STORAGE PERFORMANCE MARKET

One of the thorniest challenges for a storage system buyer is to determine before purchasing if the product will perform as expected. A storage system, after all, is a means to an end; what matters is the application performance. Translating storage specs provided by the vendor into application performance has been a black art. A buyer either ends up buying too much performance or too little but only finds out after the installation is completed and the application is running. This often leads to unhappiness on the part of IT, the end user and even the CFO.

A similar scenario plays out on the storage vendor side. The R & D team is designing a new product and wants to test it against real applications. It can simulate some basic workloads to determine how the storage system responds. Once developed it can even run the storage system against a real application to observe the behavior. But third party tools for these have been few and far between in the industry and most R & D groups have struggled to get access to real-world workload data that can be used by their performance engineering teams.

A third scenario plays out when the storage system has been up and running for a while in the data center. Let's assume all is well and the application is meeting all the SLA requirements. Then additional workloads or users get added; a switch port starts misbehaving; an HBA starts performing erratically, or a VMware VM goes rogue. Application performance takes a dive and it takes painstaking work on the part of a joint team of storage, database, VMware and networking experts to figure out what went wrong. Several hours, and sometimes days later the issue is identified and

resolved. In the meantime, application performance falls below the SLA committed to the end customer. Unhappiness results.

These scenarios play out thousands of times every day. For an industry that prides itself on innovation, this aspect of storage infrastructure performance has remained a dark secret. Most tools used to manage storage or application performance, or diagnose infrastructure problems, are supplied by the vendors of those products. Few third party, vendor agnostic tools exist. This is where Virtual Instruments steps in.

ENTER VIRTUAL INSTRUMENTS

Two companies, namely Virtual Instruments and Load DynamiX, have been focused on dealing with these issues for some time. While Virtual Instruments focused on solving the operational-side issues (monitoring the infrastructure from server to storage, diagnosing issues and recommending resolutions), Load DynamiX focused on workload generation, simulation and analysis and mostly appealed to the storage developers, IT architects and storage engineers. With their recent merger, the combined company, named Virtual Instruments, now can supply solutions across the board for these constituencies with the goal of making, “applications and infrastructure perform better together.”

The combined company now possesses a strong portfolio of products ranging from FC taps; FC Hardware Probes; NAS Storage Probes; Network Probes; Virtual Server Probes; VirtualWisdom Management Platform; Workload Generation Appliance; Workload Sensor; Workload Importer and Load DynamiX Enterprise Management Software. While the original VI products monitor and analyze in real time the entire infrastructure from servers to storage, the Load DynamiX products focus strictly on acquisition and analysis of workload data. Together, they can now provide a holistic view into the workings of the infrastructure and identify issues affecting performance and availability, along with ingesting, modifying, modeling and simulating a wide variety of workloads to determine their impact on the storage infrastructure. The combination makes for a very comprehensive portfolio of products designed to make the relationship between the infrastructure and application performance much more transparent. Other products in the portfolio are designed to assist the IT buyer make better decisions on buying the right storage product for the task and for the storage developer to build the product with a strong understanding of how it reacts to certain application workloads.

To encourage the use of these products, Virtual Instruments announced this month a free product and service named WorkloadCentral, the purpose of which is explained below:

WORKLOADCENTRAL

WorkloadCentral is a free cloud-based teaser product to enable storage architects and buyers to gain better visibility into their existing workloads and how their storage product currently interacts with them. The workloads can be modified and modeled to determine how the storage system would react to future workloads. Unquestionably, storage performance is directly correlated to the workload it is running and workload characteristics, such as read/write ratios, dedupe and/or compression ratios, block size, data/metadata command ratios, etc. can affect application performance dramatically. The purpose of WorkloadCentral is to provide a meaningful insight into this relationship so appropriate storage systems may be purchased for the task at hand.

Vendors and users alike may also share application workload profiles with each other and with their customers and prospects via a Virtual Instruments managed cloud. The idea is to create a community of vendors, service providers, and users who can share workload profiles for a variety of applications and exchange ideas regarding best practices around understanding and modeling workload performance.

There are four components to WorkloadCentral: Workload Importer, Workload Analyzer, Workload Editor and Public Workload Library. The purpose and need for each is described below:

Workload Importer

The Workload Importer offers the ability to upload workload data from any vendor or environment by simply using the tools that come with the server or storage of most vendors. Import policies for a wide variety of storage products in the industry are provided by Virtual Instruments to make the task of uploading easier. Regardless of whether the workload data came from a storage array or a server, once uploaded, WorkloadCentral recommends a set of policies to use to analyze the data, based on a variety of factors.

Workload Analyzer

The Workload Analyzer provides a free, downloadable and printable report that graphically shows the workload access patterns, workload behavior characteristics and workload performance. It provides a visual way to understand the I/O characteristics of the workload and how the storage system is reacting to it. This will be very eye-opening to most storage professionals as they have not typically been able to visually analyze their workloads prior to WorkloadCentral.

Workload Editor

The Workload Editor allows the analyzed workload profile to be converted into a workload model that can be modified easily to see how a storage system would react to these changes. Think of this as a simulator where what-if scenarios can be orchestrated. It can be used to simplify the evaluation of new storage technologies, vendors, or different workload assumptions. For example, what happens to performance if my user base grows by 50% or 100%? Or what happens if the content becomes more or less reducible (e.g. compressible, dedupable)? Workload modeling is ideal for answering these types of what-if scenarios.

Public Workload Library

The Public Workload Library serves the purpose of communal sharing of information and best practices. Virtual Instruments has over the years amassed a large number of workloads for a wide variety of applications and it is making these available to the community. These include file, block and object-based workloads for applications such as DBMS, VDI, messaging and many more. It also has provided functional workloads to test scaling, performance and specific use cases. Of course, many more will follow.

Once it gets going, the library will likely be fed vigorously by the community. Users may share workload data with their vendor, for instance, so the vendor may determine root cause for performance issues or to provide a more accurate proposal for their next storage deployment. Users may share data with other users to see if certain storage products perform better for specific workloads. Cloud service providers will use WorkloadCentral to enable their existing and future clients to share workload requirements data to enable migration of certain application workloads to their cloud platforms. Only the imagination of the users will limit how this data is used.

Of course, WorkloadCentral is a teaser product. It provides just enough information to establish value for the concept of workload analysis and the need to go further. One would need to buy the Load DynamiX Enterprise products to get a fuller and deeper view into their storage environments and run the full simulated workloads. For instance, if one wishes to visualize workload behavior over time, or evaluate the best storage technology for the task, or optimize storage configurations for best price/performance for given workloads, then one has to use a Virtual Instruments Load DynamiX Workload Generation appliance.

TANEJA GROUP OPINION

Storage has always been the most critical element of the IT infrastructure that affects application performance. And, of course, an application is nothing more than a workload to storage. In spite of this realization, as an industry, we have done little to demystify this and buying the optimal storage system for a particular workload has remained one of the most challenging tasks for IT professionals. To make matters worse, now with converged or hyperconverged systems, we run a wide variety of workloads on a common infrastructure. This makes the interaction between the applications and storage so complicated that no human being can understand this interaction, or diagnose issues, without the use of analytical tools and automation. If the need for products from vendors like Virtual Instruments was palpable before, now it becomes self-evident. Cloud infrastructures, by definition, are multi-tenant and multi-application. Without appropriate simulation and performance analytics tools, delivering the right SLA for individual applications in these environments becomes almost impossible.

This is the reason we believe the time is right for products such as Load DynamiX Enterprise and VirtualWisdom. WorkloadCentral is a simple and easy way for Virtual Instruments to let the vendor and the user community, at large, try out its product and quickly gain an understanding of their workload characteristics and its interaction with their storage. Once they see and experience adequate value in the concept the company believes IT organizations, vendors and service providers will take the next step: buy the Virtual Instruments Load DynamiX products.

We like the fact that the community can share workload profiles and ideas about how to optimize their own environments by learning from each other. If nothing else, the user of WorkloadCentral will gain insight they didn't have before. But we doubt if a serious storage shop will not be swayed to take the next step. But whether you do or not, we think this service will be of immediate value to users.

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