

Load DynamiX Enterprise: Comparison with Legacy Testing Tools

The industry's only workload- centric storage performance analytics test solution

Virtual Instruments' Load DynamiX Enterprise brings advanced workload acquisition, workload modeling and workload performance analytics testing to IT organizations. Our testing solutions provide critical insight to help our customers optimize the performance, availability, and cost-effectiveness of their storage systems. Our storage performance analytics testing solutions provide detailed workload analysis that enables the accurate emulation of production application workloads at extreme scale. This empowers storage professionals to optimize storage system deployments, find storage system limits before being deployed in production, and accelerate resolution of troublesome performance issues.

Legacy load generation and performance testing products are mostly useful for small one-off projects because they require a significant effort to deploy and execute, lack realism and scale, and fail to offer repeatable results.

Load DynamiX Enterprise performance analytics is the only solution that combines workload generation and workload acquisition hardware, with software to acquire, analyze and model workload profiles, and run tests to accurately emulate real-world application workload behavior.

Load DynamiX Enterprise Advantages for Workload Generation and Performance Testing

Nearly all of our customers started out using freeware tools like Vdbench, fio, and Iometer, and moved to Load DynamiX Enterprise. The points on the next page describe the key reasons why so many IT organizations have upgraded to Load DynamiX.

“*Accurately measuring the performance of deduplication and compression depends on generating data content patterns sufficient to stress a storage array.*”

Leah Schoeb
EVALUATOR GROUP

Load DynamiX Enterprise Advantages over Freeware / Shareware Tools

1. **Ease of use & deployment** – Using Load DynamiX Enterprise results in up to 10X more tests per month equating to higher storage engineer productivity and better storage decisions.
 - a. Through our Workload Data Importer, LDX includes a completely industry-unique automated workload acquisition, analysis, and modeling solution that relieves the manual burden of building the simulated workload. We can show you how to export a CSV record of I/O data from your existing production array or your Virtual Instruments Probe, and import it into Enterprise.
 - b. Novice users can create very complex models that support composite workloads with temporality.
 - c. LDX enables you to iterate hundreds of tests from a single command, eliminating the need to write, spawn, and track results from dozens or hundreds of separate test/threads.
 - d. Sample workload models are available for iSCSI, NFS, SMB, FC, object storage, VDI, database OLTP, fileserver, photo server, streaming video and many others.
2. **Best in Class Realism** – Using the LDX workload acquisition and profiling tools results in better purchase and deployment decisions that minimize cost and assure performance.
 - a. Load DynamiX Enterprise offers a richer set of test parameters, such as the ability to generate compressible and deduplicable content; more closely simulating your actual production environment.
 - b. The Workload Sensor offers unparalleled, granular data acquisition from your existing storage infrastructure for the most accurate workload models.
 - c. LDX support of meta-data file system calls mimic real-world applications, which can constitute well over 50% of all I/Os.
 - d. LDX support of composite workloads allows you to run multiple workloads, even with different protocols, concurrently, for a more granular application emulation.
 - e. Additionally, LDX is the only platform that enables you to develop application workloads that simulate both temporal and spatial localities, and hotspot drift.
3. **Repeatability and consistency of Results** – By being an appliance-based solution with an integrated test management platform and database, you can have 100% confidence in all comparisons across products, locations, users, and time. And our automated Workload Acquisition eliminates the human error that easily sneaks in through analysis mistakes or even simple data input errors.
4. **Comprehensive charting and reporting tools** – LDX greatly reduces the time it takes to generate, compile and share reports for faster time to insight. There's no need to find the ASCII or html output files from each load generator / server, and consolidate them into a format that you can use. LDX allows you to easily share the results of your tests by creating a reusable report template as the basis for generating reports.
5. **Professional services and support** – you've got an active partner in solving your problems and evolving the product in a timely basis. Trained experts answer your questions immediately. And perhaps most importantly, we can help you to avoid flawed testing methodologies that can easily lead to bad decisions. You have direct input on roadmap items and you can count on 2-3 significant product updates per year vs. updates every few years, ensuring that you're keeping current with new technologies, protocols, etc.
6. **Performance** – LDX purpose-built load generation appliances are optimized to generate and drive extreme storage workloads across a wide variety of storage protocols and interfaces. LDX appliances include a real-time operating system and customized network drivers that have been engineered to drive massive loads onto any storage system. You can run multiple tests concurrently, without interfering with other tests; better utilizing your IT staff and lab hardware resources. Scale to nearly 8 Million IOPS on a single 2RU Workload Generation Appliance.
7. **Best in Class Test Management** – LDX offers a single pane of glass and global sharing of test functions to simplify the storage testing process across your organization. You can manage many concurrent applications and workload emulations, provide a global, centralized reporting repository, and manage your historical database of tests, workloads, templates and reports.
8. **A new Level of Vendor Collaboration** – The workload generators and workload modeling software that you use in your test labs are the same ones that nearly every storage vendor on the planet uses. By deploying LDX, you can refine and improve your POC evaluations by sharing workloads with your vendors, resulting in a better, more informed buying decision. For troubleshooting, your vendors can replicate your

production environment in their support sites and run identical tests for dramatically faster problem resolution.

- 9. **Broadest Protocol coverage** – LDX supports every File, Block and Object protocol inside of one easy to use testing platform instead of multiple different tools. Includes support for SMB2.x, SMB 3.0 dialect, MS-RPC, NFSv3, NFSv4, NFSv4.1, iSCSI, Fibre Channel, HTTP/S, OpenStack Swift & Cinder, SNIA CDMI, and Amazon S3.
- 10. **Lower total testing costs** – LDX enables substantial savings on people and capital

expenses for a more productive engineering team. With freeware, you still need to buy servers and VMs, provision them, and staff and support a testing lab. One Load DynamiX Enterprise 2U appliance can do what 10-20 physical servers can do, which saves on setup, administration, virtualization software licenses, power, cooling, & floor space. With LDX, engineers spend 80% of their time doing actual testing, as opposed to spending 80% of their time administering their test lab, creating workload models, writing test scripts and creating reports. It's easier to justify ROI for a dedicated test/dev lab, as Load DynamiX Enterprise is a “test lab in a box”.



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