

## Virtual Series Storage Validation Appliance (LDX-V)

Flexible deployment option for the industry's most comprehensive storage validation solution



The Load DynamiX Virtual Series (LDX-V Standard and LDX-V Plus) load generation appliances complement our 2U physical appliances in two ways:

1. For technology vendors, significantly improves time-to-market and product quality by enabling engineers and developers to perform functional testing with their own, dedicated virtual performance validation appliance solution.
2. For enterprise IT, by enabling a lightweight load generation solution for less performance-intensive IP-based storage networks.

### Product Benefits

- Unparalleled realism
- Superior collaboration
- Broad protocol depth
- VM-enabled

LDX-V uses the same software GUI, same workflow, same statistics, same Projects and same API used by the Load DynamiX physical appliances. LDX-V supports VMware ESXi 5.1 and above. LDX-V Standard runs at up to 1Gbps and LDX-V Plus runs at up to 4Gbps per virtual appliance. Multiple LDX-V instances can be deployed on the same host or distributed across a number of hosts. The Load DynamiX storage validation product suite was built with the intelligence and scalability to validate modern storage infrastructures with high accuracy and extremely realistic I/O patterns. The suite includes three integrated components that provide the following advantages:

- Comprehensive storage validation platform: Lower your testing costs by unifying storage validation processes with a single virtualized testing solution for File, Block, and Object/Cloud storage.
- Emulation of real-world traffic: Find performance bugs quickly with the most accurate and efficient workload simulation with the industry's deepest and broadest storage protocol emulations.
- Easy to use GUI: Start validating storage systems quickly with an intuitive graphical user interface and a library of prebuilt tests that will accelerate your time to market.

## Appliances for Storage & Network Technology Vendors

- Load DynamiX Enterprise software: a Web-based user interface that controls multiple Load DynamiX appliances that can be leveraged by defined user groups. Ideal for improved collaboration and greater utilization of Load DynamiX ports and tests. It enables simplified workload modeling and 'push-button' testing.
- Load DynamiX Test Development Environment (TDE) software: client application for designing and executing tests as well as validating test results.
- Load DynamiX Test Automation Framework (TAF): framework for using supported APIs for test configuration, execution and results validation.

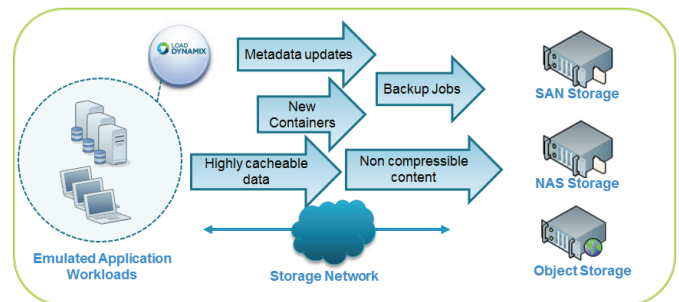


Figure 1. Load DynamiX unified performance validation solution for File, Block and Object storage.

## Load DynamiX Virtual Series Appliances Include

### Intuitive & Customizable GUIs

Tailored for novice to advanced users, Load DynamiX offers customizable GUIs for simplified workload modeling, workload generation, results analysis, and cross-team collaboration. Users also have access to pre-built, editable tests to accelerate test development.

### Broad Protocol Coverage

Detailed performance emulation of storage protocols that provide rich, accurate emulations of workloads across NFS, SMB, iSCSI, HTTP/S, CDMI, Amazon S3 and OpenStack Swift.

## Product Features and Specifications

|                            |        |  |
|----------------------------|--------|--|
| Superior Realism           |        | <ul style="list-style-type: none"> <li>Extremely flexible I/O access patterns</li> <li>Richest metadata emulation to evaluate real-world performance</li> <li>Parallel scenarios and asynchronous constructs to model hypervisor, application and OS behavior using multiple protocols</li> <li>Canned and user-defined content generation options to validate caching, tiering and deduplication functions</li> <li>Granular configuration of protocols for functional testing</li> <li>Powerful LDX User Parameter files to create highly scalable run-time patterns for folder structures, authentication credentials, connections, addresses, and more</li> <li>Client leasing/delegation to validate local caching operations</li> <li>Threading, Async, and Compound Action support for selected protocols</li> <li>International characters support with UTF-8 encoding.</li> </ul> |
| Storage Protocols          | File   | <ul style="list-style-type: none"> <li>Client: SMB, SMB 2.x, SMB 3.0 dialect, MS-RPC, NFSv2, NFSv3, NFSv4, NFSv4.1</li> <li>Server: CIFS/SMB, SMB 2.x, NFSv3</li> </ul>  |
|                            | Block  | <ul style="list-style-type: none"> <li>Initiator: iSCSI, OpenStack, Cinder</li> <li>Target: iSCSI</li> </ul>   |
|                            | Object | <ul style="list-style-type: none"> <li>Client: HTTP, HTTPS, OpenStack Swift, SNIA CDMI, Amazon S3</li> <li>Server: HTTP, HTTPS</li> </ul>  |
| Load Profiles              |        | <ul style="list-style-type: none"> <li>Specify the number of concurrent users, new users per second, actions per second, network bandwidth or TCP throughput</li> <li>Timeline load parameterization to simulate network I/O patterns</li> <li>Run multiple realistic user workloads simultaneously</li> </ul>   |
| Networks                   |        | <ul style="list-style-type: none"> <li>MAC, VLAN, IPv4, IPv6, TCP, DNS</li> </ul>  |
| Measurements and Reporting |        | <ul style="list-style-type: none"> <li>Data verification to validate data integrity with error logs</li> <li>Detail statistics including per-command response time and errors</li> <li>CSV result export</li> <li>PCAP capture</li> <li>Built-in Reporting Tool</li> </ul>   |
| Authentication             |        | <ul style="list-style-type: none"> <li>NTLM, Kerberos, CHAP</li> <li>OpenStack Keystone</li> </ul>   |
| Automation                 |        | <ul style="list-style-type: none"> <li>Test parameters can be specified at run-time</li> <li>Statistics reported dynamically during the test</li> <li>Test Execution Rules triggered by test statistics</li> </ul>   |

## Product Features and Specifications Continued

|  |   |
|--|---|
| <b>LDX-V or V+ System Requirements</b> | <ul style="list-style-type: none"> <li>Vmware ESXi 5+</li> <li>5 vCPUs</li> <li>5 GB memory &amp; 4 GB disk</li> <li>5 x virtual interfaces</li> <li>Network connectivity to on-premise LDX-V License Server</li> </ul> |
|--|---|

| Item                          | LDX-V Standard | LDX-V Plus                            |
|-------------------------------|----------------|---------------------------------------|
| Bandwidth - total for 4 ports | 1Gbps*         | 4Gbps*                                |
| Number of virtual ports       | 4              | 4                                     |
| Capture buffer                | 100GB per port | 100GB per port                        |
| Concurrent Scenarios          | 400            | Not applicable; no designed-in limits |
| IOPS                          | 10,000         | Not applicable; no designed-in limits |
| IP addresses                  | 4,000          | Not applicable; no designed-in limits |
| MAC addresses                 | 1,000          | Not applicable; no designed-in limits |
| Max Project Duration          | 72 hours       | 72 hours                              |

\*These are LDX designed limits. To reach these limits, the user is responsible for providing a host that is well-resourced.



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