

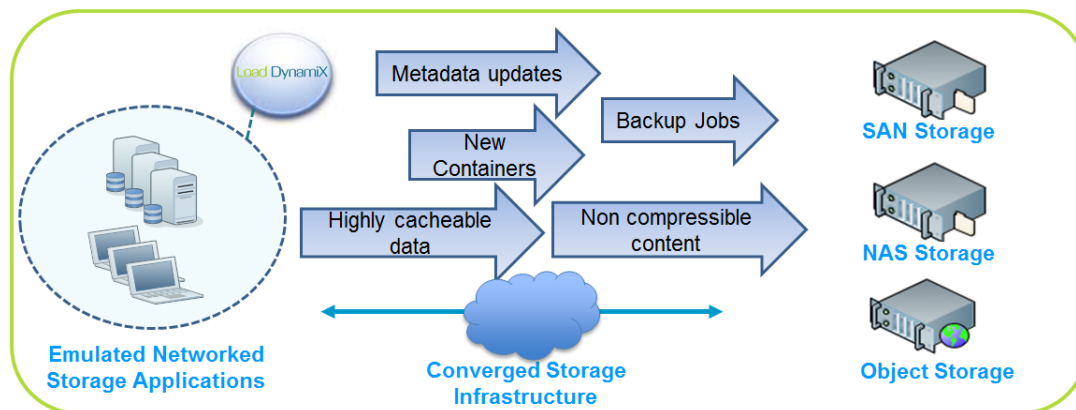
## Load Dynamix Performance Validation Appliances for Equipment Manufacturers



**The Industry's Most Comprehensive  
Storage Performance Validation Solution**  
Proven Realism  
Highest Performance  
Deepest Protocol Depth

The Load Dynamix performance validation product suite was built with the intelligence and scalability to validate modern storage infrastructures with high accuracy, tremendous load and extremely realistic patterns. The product includes three integrated components that provide the following advantages:

- **Comprehensive storage validation solution:** Unify storage validation processes with a single testing solution for File, Block, and Object/Cloud storage
- **Emulation of real-world traffic:** Get the most accurate and efficient workload simulation with the industry's deepest storage protocol emulations
- **Ease of use / time to value:** Start validating storage systems quickly with an intuitive graphical user interface and a library of prebuilt tests



**Illustration 1. Load Dynamix unified File, Block and Object storage validation**

## Load Dynamix Solution Components



### Intuitive & Customizable GUIs

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



### Broad Protocol Coverage

Detailed performance optimized emulation of storage protocols to provide rich, highly accurate emulations of storage workloads across File, Block and Object / Cloud storage.



### All-in-one Appliances

Load generation appliances capable of executing complex traffic emulation at extreme loads; currently available in three configurations (1GigE, 10GigE, and 4/8Gig Fibre Channel).

## Appliances for Storage & Network Vendors

### Load Dynamix 1G Series



**Test Interfaces:**  
1GbE RJ45

**Performance:**  
Single Port: 1.9 Gbps  
8-Port Appliance: 14 Gbps

### Load Dynamix 10G Series



**Test Interfaces:**  
10GbE SFP+  
10GBASE-T

**Performance:**  
Single Port: 17.5 Gbps  
2-Port Appliance: 35 Gbps  
8-Port Appliance: 140 Gbps

### Load Dynamix FC Series



**Test Interfaces:**  
4/8G FC SFP+

**Performance:**  
Single Port: 13 Gbps  
2-Port Appliance: 26 Gbps

Appliances work with the following utilities:

- **Load Dynamix Enterprise software:** an intuitive Web 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 for any networked storage device.
- **Load Dynamix Test Development Environment (TDE) software:** client application for designing tests and simulations with high granularity, executing tests, and validating test results.
- **Load Dynamix Test Automation Framework (TAF):** framework for using supported APIs for test configuration, execution and results validation.

## Product Features & Specifications

<b>Superior Realism</b>		<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 Load Dynamix 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> </ul>
<b>Storage Protocols</b>	<b>File</b>	<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>
	<b>Block</b>	<ul style="list-style-type: none"> <li>▪ Initiator: iSCSI, Fibre Channel</li> <li>▪ Target: iSCSI</li> </ul>
	<b>Object</b>	<ul style="list-style-type: none"> <li>▪ Client: HTTP, HTTPS, OpenStack Swift, SNIA CDMI</li> <li>▪ Server: HTTP, HTTPS</li> </ul>
<b>Network</b>		<ul style="list-style-type: none"> <li>▪ MAC, VLAN, DCB, IPv4, IPv6, TCP</li> <li>▪ FC, NPIV</li> </ul>
<b>Authentication</b>		<ul style="list-style-type: none"> <li>▪ NTLM, Kerberos, CHAP</li> </ul>
<b>Load Profiles</b>		<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>
<b>Measurements and Reporting</b>		<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>
<b>Automation</b>		<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>