

WorkloadWisdom Workload Generators



The most comprehensive storage performance validation for today's Enterprise IT and Technology Vendors

Find performance and scalability bugs caused by real workload behaviors. With the industry's deepest and broadest storage protocol emulations and command-by-command control, WorkloadWisdom delivers the most accurate and efficient workload simulation.

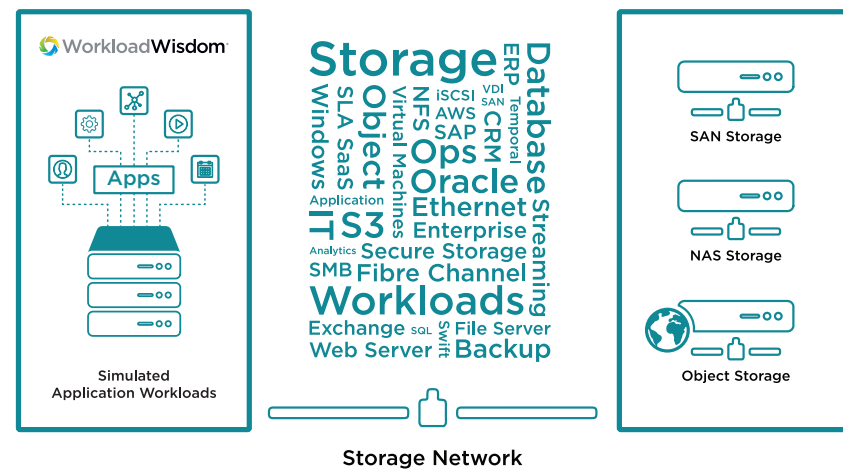


Figure 1. WorkloadWisdom unified File, Block, and Object storage validation solution



Product Benefits

- Superior Realism
- Highest Performance
- Deepest Protocol Depth

Intuitive & Customizable GUIs

Designed for all users, from novice to advanced, WorkloadWisdom offers GUIs for simplified workload modeling, workload generation, results analysis, and cross-team collaboration. Users also have access to pre-built, editable tests designed to greatly accelerate test development.









Broad Protocol Coverage

WorkloadWisdom offers detailed performance emulation of storage protocols that provides rich, accurate emulations of workloads across File, Block, and Object/Cloud storage.

All-in-One Workload Generators

All-in-one workload generators are capable of executing complex traffic emulation at extreme loads. (Currently available in the configurations listed.)

Workload Generators for Storage & Network Technology Vendors

	Test Interfaces	Performance
1G Series 	8 x 1GbE	Single Port: 240MB/s 8-Port: 1770MB/s
10G Series 	2 x 10GbE SFP+ 4 x 10GbE SFP+ 8 x 10GbE SFP+ 8 x 10GBASE-T	2-Port: 4660MB/s 8-Port: 17,720MB/s
25G Series 	4 x 25GbE SFP28	4-Ports: 23,830MB/s
40G Series 	2 x 40GbE QSFP 4 x 40GbE QSFP	2-Ports: 18,910MB/s 4-Ports: 37,400MB/s
16GFC Series 	2 x 4/8/16GFC 4 x 4/8/16GFC 8 x 4/8/16GFC	2-Port: 5380MB/s 4-Port: 9300MB/s 8-Port: 16,110MB/s
32GFC Series 	2 x 32GFC 4 x 32GFC	2-Ports: 12,810MB/s 4-Ports: 25,360MB/s
Unified Series 	2 x 10GbE + 2 x 4/8/16GFC 4 x 10GbE + 4 x 4/8/16GFC	2-Port 10GbE: 4780MB/s 2-Port FC: 6220MB/s 4-Port 10GbE: 9560MB/s 4-Port FC: 12,440MB/s
WorkloadWisdom Series 	Up to 4 x 10GbE Up to 4 x 4/8/16GFC	4-Port 10GbE: 9300MB/s 4-Port FC: 9090MB/s

Workload generators work with the following software:

WorkloadWisdom Software

An intuitive web-based platform designed for cross-functional team collaboration. For example, QA engineers can create functional tests for developers prior to submitting code; team leads can create regression suites in a centralized repository for team members to execute and share results; and go-to-market teams can build workload models from customers' production data in order to verify solution acceptance. (Included in the WorkloadWisdom Series; optional in 1G, 10G, 25G, 40G, 16GFC, 32GFC, and Unified Series appliance products.)

Test Development Environment (TDE)

A single user client application for designing and executing tests and validating test results. (Included in all Workload Generator products.)

Test Automation Framework (TAF)

A framework for using supported APIs for test configuration, execution and results validation. (Included in all Workload Generator products.)

Product Features and Specifications

Superior Realism		<ul style="list-style-type: none"> Extremely flexible I/O access patterns Richest metadata emulation to evaluate real-world performance Parallel scenarios and asynchronous constructs to model hypervisor, application and OS behavior using multiple protocols Canned and user-defined content generation options to validate caching, tiering and deduplication functions Granular configuration of protocols for functional testing Powerful WorkloadWisdom User Parameter files to create highly scalable run-time patterns for folder structures, authentication credentials, connections, addresses, and more Client leasing/delegation to validate local caching operations Threading, Async, and Compound Action support for selected protocols
Application Workload Models		<ul style="list-style-type: none"> Constant Workloads: standard general purpose Workload Models with easy to use sliders / bins to specify Access Patterns, R/W vs Metadata operations, Block Sizes, fixed / sequential / random data payload, load profiles, and more. Hot Spot Workloads: Constant Workload Models with the additional ability to specify IO region intensity and drift over time. Available for FC and iSCSI. Temporal Workloads: designed to be paired with the powerful Workload Data Importer engine. Workload Models that can vary the IO characteristics (such as Access Patterns and Load Profiles) over time, to match the production workload's temporality characteristics Composite Workloads: a framework that joins multiple Workload Models together. Each sub-Workload carries its own IO profiles and configurability, to simulate complex applications such as databases where multiple processes carry different IO characteristics Application Workload Examples: Constant Workload Models with predefined IO profiles based on commonly observed IO characteristics from popular applications (included) Application Workloads: purpose-built workloads that provide parameters specific to the application (e.g., Number of VMs for VDI applications) instead of protocol parameters such as Read Block Size
Storage Protocols	File	<ul style="list-style-type: none"> Client: SMB, SMB 2.x, SMB 3.x, NFSv2, NFSv3, NFSv4, NFSv4.1 Server: CIFS/SMB, SMB 2.x, NFSv3
	Block	<ul style="list-style-type: none"> Initiator: iSCSI, Fibre Channel Target: iSCSI
	Object	<ul style="list-style-type: none"> Client: HTTP, HTTPS, OpenStack Swift, SNIA CDMI, Amazon S3, OpenStack Cinder Server: HTTP, HTTPS

Product Features and Specifications Continued

Network	<ul style="list-style-type: none"> MAC, VLAN, DCB, IPv4, IPv6, TCP FC, NPIV
Load Profiles	<ul style="list-style-type: none"> Specify the number of concurrent users, new users per second, actions per second, network bandwidth or TCP throughput Timeline load parameterization to simulate network I/O patterns Run multiple realistic user workloads simultaneously
Measurements and Reporting	<ul style="list-style-type: none"> Data verification to validate data integrity with error logs Detail statistics including per-command response time and errors CSV result export PCAP capture Built-in Reporting Tool
Authentication	<ul style="list-style-type: none"> NTLM, Kerberos, CHAP, Keystone
Automation	<ul style="list-style-type: none"> Test parameters can be specified at run-time Statistics reported dynamically during the test Test Execution Rules triggered by test statistics
Hardware: 1G, 10G, 16GFC & Unified Series	<ul style="list-style-type: none"> 2 RU enclosure (17.2" X 3.5" X 25.5") 740W redundant power supply AC Input: 100-240V, 9-3.5A, 50-60 Hz Operating temperature range: 50 - 95°F / 10-35°C Operating humidity range: 8-90% (non-condensing) Weight: 52lbs / 23.6kg
32GFC/25G/40G Series	<ul style="list-style-type: none"> 2RU Enclosure (17.2" x 3.5" x 28.5") 1000W redundant power supply AC Input: 100-240V, 9.8-5A, 50-60Hz Operating temperature range: 50-95F/10-35C Operating humidity range: 8-90% (non-condensing) Weight: 85lbs / 38.6kg
WorkloadWisdom Series	<ul style="list-style-type: none"> 2 RU enclosure (17.2" x 3.5" x 28.5") 1280W redundant power supply AC Input: 100-240V, 9-3.5A, 50-60 Hz Operating temperature range: 50 - 95°F / 10-35°C Operating humidity range: 8-90% (non-condensing) Weight: 85lbs / 38.6kg