

Storage Validation Framework (SVF) Engine

"The software engine driving the OakGate platform for high-performance and robust testing of flash storage"

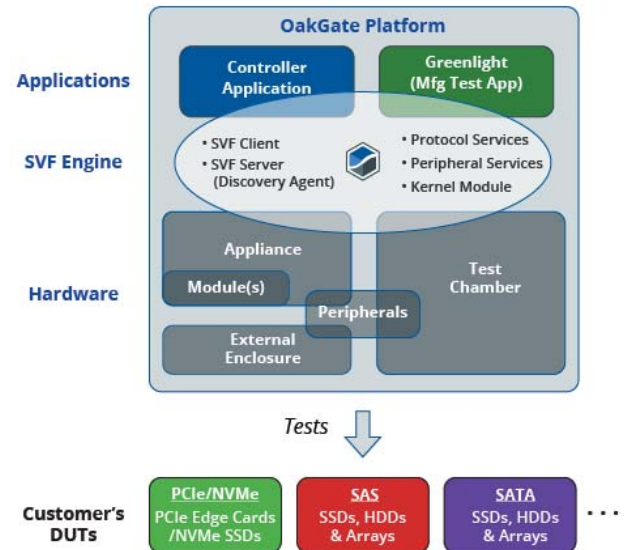
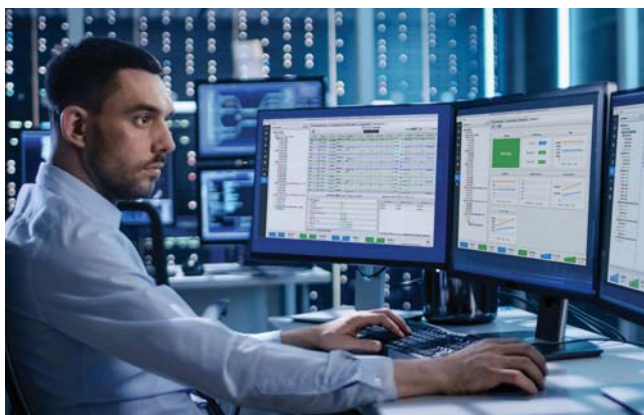
The industry's most advanced storage-testing software, the Storage Validation Framework (SVF) engine is the core software driving the OakGate appliances and running the OakGate applications, It's been strategically built from decades of industry storage experience, providing a high-performance, feature-rich foundation. Well into its third generation, the SVF engine has been hardened over several years in intense test environments at major storage customer sites worldwide.

The SVF engine provides a comprehensive storage resource, reaching far beyond basic protocol comprehension to deliver unparalleled testing facility to the application layers, including the ability to mix protocols and to finely tune every aspect of any test scenario.

Traffic Generation

Generate high-performance, randomized traffic profiles with ease and test scenarios that would be extremely difficult to create manually or with any other test tool.

- High performance
- Flexible for complete control of workloads
- Fixed or randomized I/O patterns
- Small-to-large queue depths
- JEDEC enterprise and client workloads



Protocol Support

Designed expressly for flash-based storage and solid state drives (SSDs), OakGate's SVF engine supports all popular storage interfaces, including:

- Peripheral Component Interconnect Express (PCIe)
 - Non-Volatile Memory Express (NVMe)
 - NVMe Management Interface (NVMe- MII)
 - Advanced Host Controller Interface (AHCI)
- Serial Attached SCSI (SAS)
- Serial ATA (SATA)
- Fibre Channel (FC)

With the platform's native protocol integration and form factor support, it is easy to test complex heterogeneous topologies without the need for additional tools or equipment. Coordinating and automating simultaneous multi-protocol test scenarios, all within a single unified test framework, decreases the complexity of your test infrastructure while providing the fine-grain orchestration necessary to hit every corner of your test plan.

Performance Benchmarking

Deliver consistent benchmarking results, measure the true performance of the DUT, and generate a suite of performance analytics.

- Graph against changing variables, such as average read/write IOPS, bandwidth, latency, power, voltage, and temperature
- Performance versus time
- Define variables and values to iterate over, such as queue depth, read/write ratio, I/O size, I/O capping, data entropy, and number of rounds



Protocol Analyzer

Effectively debug and analyze from early prototype bring-up through long-term I/O testing using the embedded protocol analyzer. Features of the analyzer include:

- Traffic and error presentation
- Real-time traffic and error statistics
- Trigger on I/O events
- Decoded frame analysis
- Quick search and navigation
- Sort and filter features
- Event log integration



Error Injection

Inject pre-built or custom protocol-specific error conditions and verify that your device behaves as expected even under the worst conditions.

- Low-level errors provided by OakGate drivers, such as underflow/overflow conditions, aborts, dropped frames, link downs, resets and so on.
- Injections can occur during heavy I/O workloads

Automated Test Reports

Stop manually creating test reports and save time by utilizing the automatically-generated reports created by our test automation tool.

- Summary report generation
- Complete HTML test reports
- Histograms
- Error logs
- Pass/fail reports

Protocol Conformance / Directed Tests

Execute hundreds of built-in conformance / directed tests that evaluate a device against its protocol. For maximum flexibility and control, create your own conformance tests with the directed test software development kit (SDK).



Point & Click Test Automation

Create full automation test suites without writing a single line of code using our integrated test automation tool.

- Code-free test suite creation
- Large test suites
- Product validation suites
- “Canned” test sequences
- Full SNIA benchmarks
- Customizable for user benchmarks

Customization Through APIs/SDKs

Integrate OakGate resources into your existing automation framework by utilizing our command line interface (CLI), RESTful web services, or C-based application programming interface (API), and SDKs.

- CLI
- REST and C APIs
- Directed Test SDK (dtSDK)
- Python SDK (pySDK)
- Manufacturing SDK (mSDK)

Data Validation

Identify common errors and data corruption using data validation. Build confidence that your device behaves as intended, and unconditionally keeps data intact, even under the most stressful power-loss situation.

When enabled, data validation checks whether the data that is read back from a target location is the same as the data that was last previously-written to that target location.

Peripheral Control & Power Management

The SVF engine is designed to provide a seamless path to in-chassis power cycling and measurement, as well as through external enclosures.

Add multiple peripheral controllers to the application interface to manage/monitor peripheral capabilities for DUTs, such as power on/off, power measurement, DevSleep on/off, and temperature.

