SPIRENT TESTCENTER

PACKET GENERATOR AND ANALYZER BASE PACKAGE

Convergence is creating a new generation of integrated network devices and services that are much more complex than ever before. The resulting increased complexity, scarcity of testing skills and architectural shortcomings in current test systems is hurting the ability of manufacturers to ship products on time at escalating quality levels and slowing service providers' ability to deploy networks that get Quality of Experience (QoE) right the first time.

APPLICATIONS

- Evaluate the stability of switches, routers and edge devices under static or dynamic load conditions for minutes, hours and days

- Characterize and troubleshoot functional behavior (including negative testing) of new network functionality in the development lab or before deployment into the operational network

- Evaluate key performance parameters such as per-flow QoS, fail-over time or Access Control Lists (ACL); filtering performance

- Perform comparative analysis of devices or services with deterministic traffic during product development cycles or vendor comparisons

- When used in conjunction with any of Spirent TestCenter's additional protocol packages the system can emulate complex network topologies and traffic conditions
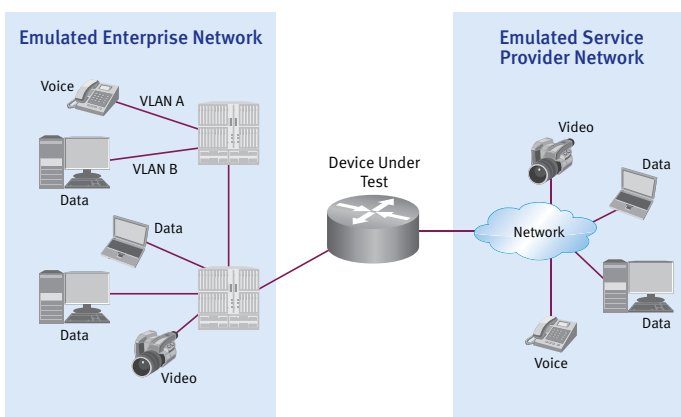
FEATURES AND BENEFITS

Testers want the security of knowing the industry's most intensive and extensive testing and analysis has been performed on their device or service. At the same time, they do not want to expend the cost, engineering effort and time associated with manually poring through mountains of collected test data.

Spirent TestCenter™'s Intelligent Results seeks out the results that represent test anomalies or failures. These are isolated and brought directly to the tester's attention without having to manually search through pages of data.

Intelligent Results™

- **Interesting Streams**—This feature allows a user to create search criteria such as frame loss, rate, latency, jitter or other combinations of measurements; the system will find all the streams matching the criteria and present them in the results view.

- **HyperFilters™**—Incoming traffic can be segregated into 64K different categories based on user-defined combinations of five filters operating on the frame data itself

- **Stray Frames Detection**—The system can automatically detect stray frames (multicast, L2 and VLAN flooding/leaking) and bring them to the tester's attention

- **Hierarchical Results (drill down)**—Results are available at the traffic group, stream block, stream (with drill down) and flow levels

- **Tx to Rx Mapping**—Testers need Tx counts particularly for devices that shape and police traffic; Spirent TestCenter provides these counts and rates for 32K Tx streams per port with matching statistics on the Rx port

Emulated Enterprise Network
Emulated Service Provider Network
Voice
VLAN A
VLAN B
Data
Data
Data
Video
Device Under Test
Network
Video
Data
Data
Voice

- Industry-leading charting capability feature provides more statistics to chart, high-resolution charts with user-specified triggering, and integrated control and data plane events on same chart with same time reference
- **Analysis of non-test frames**—Spirent TestCenter can analyze frames, including applying HyperFilters, to live traffic

HyperFilters segregate each stream into different MAC addresses, IP addresses, ToS levels or any other user-defined characteristics of the received traffic.

Jitter

The use of delay-sensitive voice and data services over IP and Ethernet is expanding rapidly. These services are sensitive to not only latency but also variations in latency also known as jitter. The buffering, queuing and switching architectures of network devices are the most significant source of jitter.

Testing and measuring a device's jitter characteristics is no longer a nice add-on. Today it is a critical task for device manufacture and service deployment.

Spirent TestCenter features the industry's best jitter measurements:

- Conforms to MEF (MEF 10) and IETF (RFC 3393) standards
- Jitter measured for all frames within a stream (not just on a sample)
- System can simultaneously analyze jitter on each of 64K streams arriving on a port
- Jitter measured at wire rate up to 10Gbps
- Jitter measured for entire test duration
- Jitter measured for mixes of constant and bursty traffic
- Jitter measured for mixes of frame sizes
- Jitter histograms
- Real-time charting of min, max, average jitter
- 1Throughput latency and jitter in a single test (one test run) for RFC 2544 test
- Video Quality Jitter measurements
  - MDI RFC 4445
  - Packet-to-packet delay variation RFC 3550

Troubleshooting Tools

Testers can spend up to one-third of their entire test time troubleshooting problems. For many labs, this represents the largest single task in the testing calendar. Reduce it and you get your products and services to market faster and with higher quality—while simultaneously reducing the cost of each test cycle.

Spirent TestCenter features the industry's best set of tools to quickly isolate, analyze and resolve problems.

- Intelligent Results allows users to quickly identify the problematic areas
- Real-time Tx controls enables the tester to troubleshoot problems by altering the test while it is running
- Real-time results views allow the user to see how the device responds to changes in the test conditions without having to stop the test and save the results
- Real-time capture/decode—detailed analysis of interactions between Spirent TestCenter and the DUT without having to halt transmission
- Comprehensive capture filters allow the user to isolate problem frames/exchanges from the traffic torrent at 10G wire rate
- Comprehensive Logging ensures no critical events are missed while allowing the user to filter out all but the key events
- The system can analyze non-Spirent TestCenter traffic to troubleshoot production networks

Spirent TestCenter GUI Framework

Customized applications, with windows arranged how the user wants and unnecessary clutter removed, are easier to use. They improve the tester's efficiency and effectiveness—ultimately leading to higher quality products and services brought more quickly to market.

Spirent TestCenter is a modern application within a sophisticated GUI. The environment can be customized to meet the unique needs of each tester.

- The Technology Selector allows each tester to customize the application to their combination of technologies; the configuration and results options associated with other technologies are placed in the background
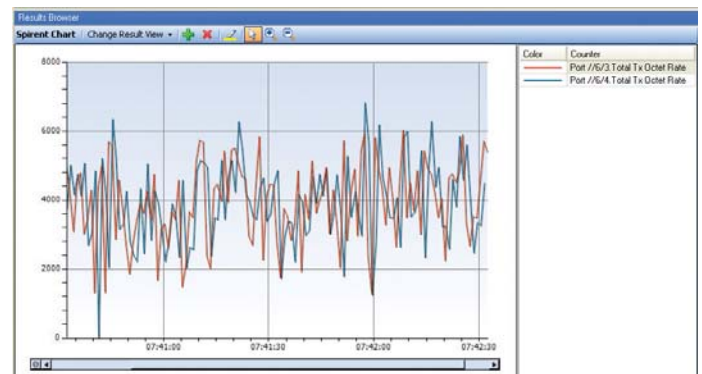
Define real-time charts to monitor critical statistics while the test executes.

- The windowing system allows each user to display favorite windows in the most efficient configuration

- The docking framework allows testers to detach windows for different display needs—including the ability to display them on multiple monitors

- Configurable results options enable up to 16 different charts and tables to be displayed simultaneously

Traffic Patterns (Scheduling)

Today's networks carry a complex mix of voice, video and data traffic. The mix varies from that sent by thousands of uncoordinated households to carefully shaped and policed backbone traffic emanating from various aggregation devices.

Only Spirent TestCenter has the flexible priority-based scheduling mode that generates realistic Triple Play traffic profiles that your device is likely to experience in the real world. Spirent TestCenter scales to simulate tens of thousands of sources all precisely scheduled by the software in just seconds.

- Spirent TestCenter features three different scheduling modes to meet the demands of different test scenarios

- Users can define the collection of constant and bursty traffic sources required to realistically emulate voice, video and data sources on a single port

- Each stream can be considered an independent traffic source with its own information rate, burst size and other shaping parameters; the tester controls contention using 32 levels of priority which simulate different service level attributes

- Users can configure the burst characteristics of each stream—burst size, IFG, IBG, frame size mixes—for thousands of traffic sources on each port

- The system mixes this traffic to create a realistic simulation of different voice, video and data sources—emulating traffic from either a vast collection of end users or from various aggregation devices that apply shaping and policing functions

- Real-time control over traffic is maintained—including control over rate—even while generating complex traffic mixes

NoCode™ Automation

Improvements centered on automation can enhance organizational productivity by 400 percent or more. Unfortunately not all test organizations can afford the expense. Scripting requires highly skilled programmers. It takes time to design, code and troubleshoot the scripts. Investment in programming tools, APIs and new infrastructure is also required. Often these hurdles are insurmountable even though the potential rewards are huge.

Only Spirent TestCenter features "No Code" automation enabling users to immediately produce executable scripts from successful GUI-driven tests with one click. No programming or API knowledge

is required. This is beyond simply saving the test configuration. The test logic is also saved from test initiation to pass/fail analysis.

- Change traffic speeds, start/stop protocols, flap routes and links in the Command Sequencer; complete control over interactive steps of Spirent TestCenter.

- Specify Pass/Fail conditions in Command Sequencer, e.g. packet loss greater than 0, links not up, etc.; thousands of user defined conditions available

- Full conditional logic—fail test if links stay down or route flap fails—if/then/else, do/while, etc.

- Set your own fail reason in the Stop Sequencer Command—string is passed back to caller in generated script
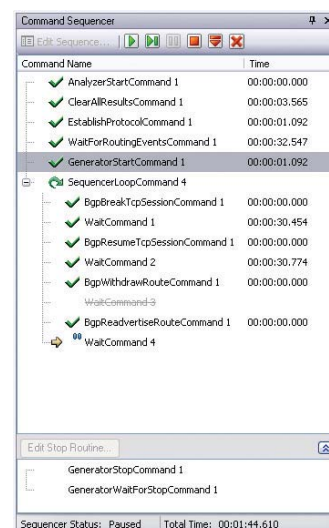
Users can create detailed and automated control over test events using the command sequencer.

Integrated Control and Data Plane (Dynamic Stream Blocks)

- Testers can spend up to half of their time configuring manual test cases. Often this is the largest effort in the testing calendar. Configurations that can take hours with legacy products take mere minutes on Spirent TestCenter. Common test cases that can easily be set up by Spirent TestCenter using its interactive GUI simply cannot be attempted using most products without expensive programming—if at all.

- By using Spirent TestCenter, testers configure their network topology and quickly build traffic on top of it using one of several configuration Wizards. No more straining to document and remember address assignments and mappings. Spirent TestCenter keeps track of all the mapping, allowing the user to simply indicate flows between end points in the emulated topology.

- Not only are these mappings automatically created at configuration time, but they are also updated while the test executes providing dynamic assignments unmatched in competing products. For example, MPLS label changes made on the DUT are distributed using the control plane protocols to Spirent TestCenter which then updates the traffic parameters on the fly, all without user intervention.

The result is significant productivity gains within the testing function, allowing faster time to market while maintaining high quality and cost control.

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SUPPORTED MODULES & PLATFORMS

- BPK-1001A supports all Spirent TestCenter test modules and personality cards.

REQUIREMENTS

- Pentium® or greater PC running Windows® XP Professional SP2 with mouse/color monitor required for GUI operation
- One Ethernet cable and one 10/100/1000 Mbps Ethernet card installed in the PC
- For test automation system requirements refer to the Spirent TestCenter Automation data sheet
- Operating system languages supported: English, French, German, Italian, Japanese, Korean and Chinese (traditional and simplified)

MINIMUM PC REQUIREMENTS

- Small Port System: 1-25 ports
  - 2.4GHz Pentium 4 or equivalent 512MB of free RAM and disk

- Medium Port System: 26-75
  - 3GHz Pentium 4 or equivalent of RAM and 15GB of free

- Large Port (75+ ports)
  - E6400 Intel® Core™2 Duo or equivalent 3GB of RAM and 100GB space

RECOMMENDED PC REQUIREMENTS

- Small Port System: 1-25 ports
  - E6300 Intel Core 2 Duo or equivalent 2GB RAM and 10GB free

- Medium Port System: 26-75
  - E6400 Intel Core 2 Duo or equivalent 3GB RAM and 100GB free

- Large Port System: 75 ports
  - E6600 Intel Core 2 Duo or equivalent 4GB RAM and 100GB free (disk should be 2 SATA RAID 0 configuration)

ORDERING INFORMATION

- Spirent TestCenter Packet Generator and Analyzer Base Package: P/N BPK-1001A

OTHER SPIRENT TESTCENTER SOFTWARE

- Many optional software packages add functionality that extends what is offered within the Packet Generator and Analyzer Base Package. Please consult the data sheet for each base and test package to determine its specific capabilities.

SPIRENT GLOBAL SERVICES

Spirent Global Services optimizes your productivity with Spirent TestCenter over a broad range of technologies:

Professional Services

- Test lab optimization: Test automation engineering services
- Service deployment and service-level optimization: Vendor acceptance testing, SLA benchmarking, infrastructure and security validation
- Device scalability optimization: POC high-scalability validation testing

Education Services

- Web-based training: 24 x 7 hardware and software training
- Instructor-led training: Hands-on methodology and product training
- Certifications: SCPA and SCPE certifications

Implementation Services

- Optimized new customer productivity with up to three days of on-site assistance

Visit www.spirent.com/gs or contact your Spirent sales representative.

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