

# SPIRENT 320

## TRAFFIC ACCESS DEVICE

The technology partnership between Spirent Communications and cpacket Networks Inc. has yielded a powerful Ethernet Solution. Previously, network traffic analysis was difficult and time-consuming, requiring extensive fact finding, data correlation, and human conjecture. It depended on capturing the entire data stream and then digging for critical data and pattern matches to provide any meaningful detailed analysis.

### SOLUTION OVERVIEW

Spirent's Traffic Access Device 320 shown below supports multiple port configurations allowing it to be deployed and utilized with 32 x SFP+ 10 Gigabit-per-second (10 Gbps) transceiver modules. In addition, all 32 ports can be used as 1G ports or in any combination of 10G and 1G ports based on your requirements and the number of fiber or copper interfaces desired.

### BENEFITS

- Scalability to meet next generation network deployments: all operations at full line rate
- Rapid reconfiguration to meet the changing usage demands: via the simple to Use Topology Configuration Interface - enabling one-to-many, many-to-one, and any-to-any setups with flexible input and output filters
- Simple setup to switch specific traffic to the right place: have the ability to search for specific combination of header fields and payload content in the traffic stream at line rate speeds and switch it to one or many ports
- Easily switch all parts of the conversation: full traffic aggregation and extraction while keeping conversations intact
- Flexible traffic management visibility: switched traffic automatically balanced as the network traffic changes along with traffic statistics and local capture capability

*Spirent 320 with its capability to analyze traffic at full line rates utilizing "Smart Filters" is a "Game Changer" allowing a shift to "Right Now" monitoring and analysis.*



### KEY FEATURES

- Simple to Use Topology Configuration Interface - enabling one-to-many, many-to-one, and any-to-any setups with flexible input and output filters.
- Complete Packet Inspection Architecture - allows users to search for specific combinations of header fields and payload content (at a given offset or anywhere at an unknown location/offset down to the last byte of any size packet) in the traffic stream at wireline speeds (10G) and switch it to one or many ports.
- Automatic Load (Flow) Balancing - with optional filtering and user defined weights for an input or groups of input including options for fail-over and hot-stand-by. Automatic triggers can alert users to unusual traffic conditions or behavioral anomalies.
- On-the-Fly Snap Capture of Traffic Samples - that match a specific filter (e.g. only packets with "rich@microsoft" in the payload) directly from the device over a standard browser.
- Accurate Time Stamping - sub-microsecond on port entry with GPS synchronization.
- Granular Performance Monitoring, Counters, and Graphs - also provides granular performance monitoring, counters, and graphs for second by second traffic and application monitoring to drill down on spikes or micro-bursts.
- Dashboard, Storage, and Presentation of Data - detailed performance information is presented in a graphical web dashboard and stored in standard CSV files. The information can be imported into SQL databases, spreadsheets, and monitoring frameworks.
- Reporting and Automatic Updating - reports information on bandwidth in or out of the device as well as network behavior information such as TCP events, frame size distribution, and protocol breakdown as shown below.

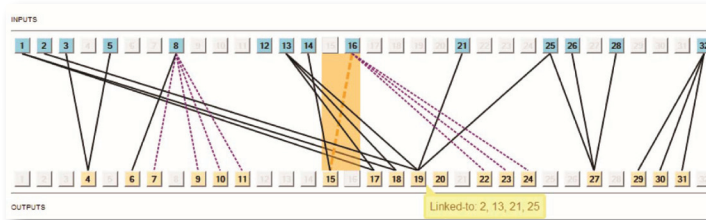
**SMART FILTERING**

“Smart Filtering” is a unique and extremely valuable feature provided by Spirent 320. Spirent’s Smart Filter technology is differentiated with the ability to perform real time on the fly traffic inspections, accurately and reliably, regardless of the incoming traffic load. Smart Filtering is very simple to use and works well for data mining, troubleshooting, debugging and selective bandwidth reduction. One Smart Filter can be equivalent to hundreds of “normal filters” used by other vendors and provides unsurpassed analysis at full-line rates. A single Smart Filter can include a combination of values or ranges of header fields combined with payload pattern search anywhere in the packet. The payload search can be based on a known offset into the packet, or a free-form pattern search for an unknown offset (including searches down to the last bit and for jumbo packets).

By using Spirent’s “Smart-Filtering” technology, you can reduce the amount of data that must be stored and analyzed, reducing the time required to determine the root cause of any service issues present. This is accomplished by bonding all of the frames associated with an event using header and payload based “Smart Filters”.

**“ANY-TO-ANY” TOPOLOGY**

Incoming traffic is inspected and subjected to L2-L7 filters. This traffic is combined with traffic from any other input ports, and steered to any output port in a flexible “Any-to-Any”, “One-to-Many”, or “Many-to-One” topology as shown below.

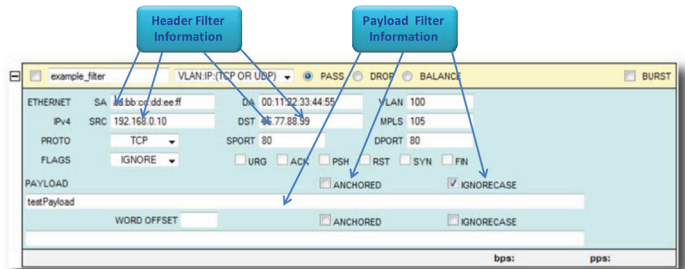


**ADDITIONAL FEATURES**

Spirent 320 can forward the pre-filtered traffic for analysis, while balancing the work load of downstream tools and analyzers based on predefined or automatic flow balancing policies. The 320 also provides integrated spikes and microburst reporting with microsecond accuracy, including accurate time stamping at the PHY before any queuing or buffering, and optional packet slicing and payload masking.

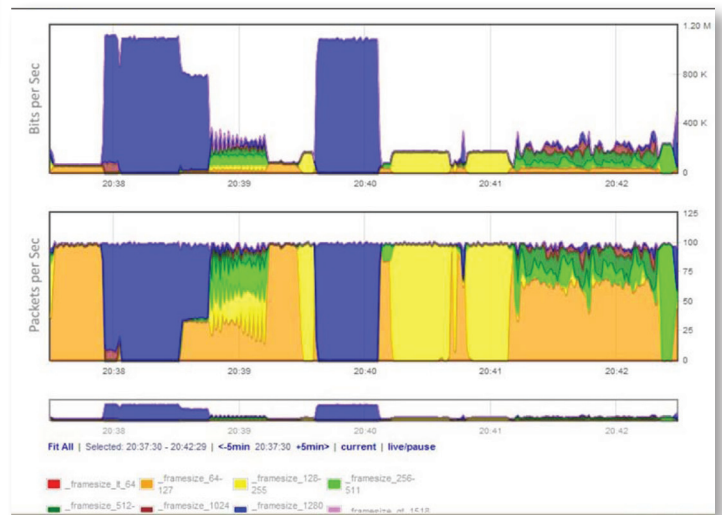
**COMPLETE PACKET INSPECTION**

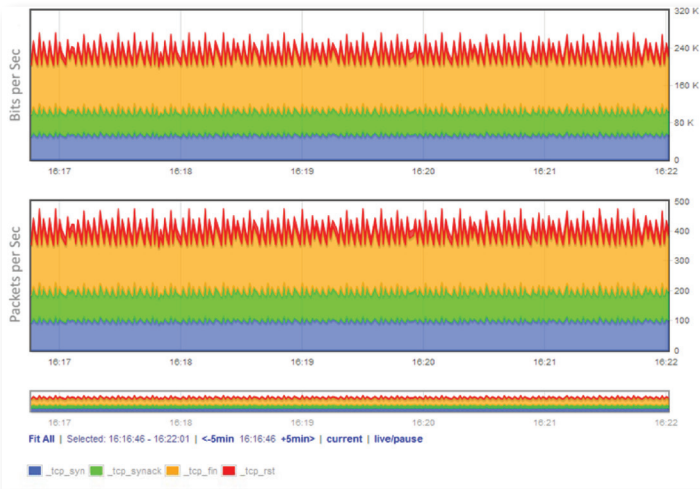
The graphical user interface allows analysts to tailor filters to specific applications based on inspection of every bit in the packet. Complete packet inspection as shown in the example below depicting both header fields and payload content “Smart Filtering” is performed at full 10 Gbps line rate per port under any traffic conditions. This includes minimum size packets, jumbo packets, or any random packet size mix. Header field constraints may include equality, inequality, and arbitrary range checks. Payload pattern search may include anchored and non-anchored strings with wildcards anywhere in the packet.



**PROTOCOL ANALYSIS AND GRAPHICS**

Spirent 320 reports information on bandwidth in or out of the device as well as network behavior information such as TCP events, frame size distribution, and protocol breakdown as shown below. New data information and additional filter update definitions are automatically added to the reports. Report information is also available in tables that show the current (instantaneous) value, such as statistics for minimum, maximum, mean, and standard deviation (window over the past 60 seconds) and cumulative values.





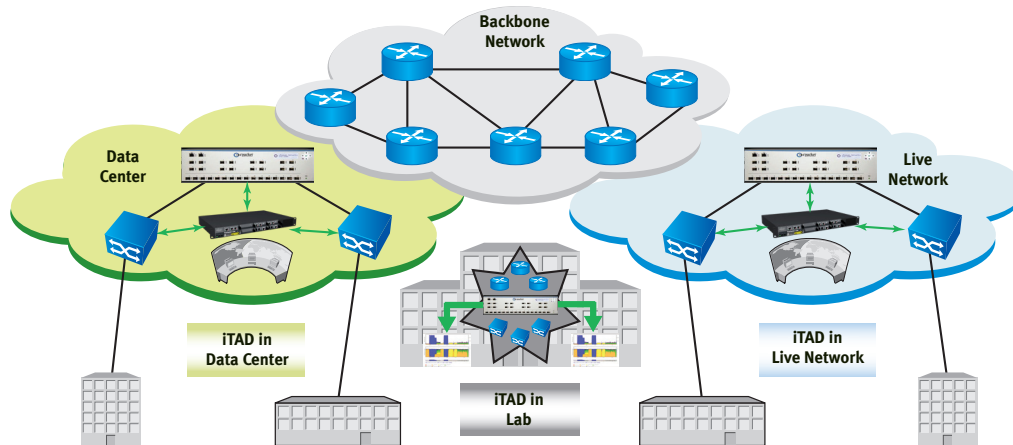
**Lab Applications**—Spirent 320 will provide the service provider tremendous payback in the lab environment through the extensive filtering and aggregation functionality the solution places at the user’s fingertips. 320 will enable the lab technician to send data to multiple tools simultaneously to take full advantage of the diagnostics each tool offers against the selected data set, or the lab technician can utilize specific traffic filtering & routing capability to send different discreet data sets to each tool if desired for selective analysis. In addition, 320 will allow the lab technician to compare data sets being modeled in the lab with real live traffic traversing their network.

**Data Center Applications**—320 will make a significant contribution to work in the Data Centers by enhancing monitoring, security, and troubleshooting. 320 supports dynamic session load balancing and filtering of network traffic for security data recorders and application performance monitors as well as the ability to capture critical traffic patterns for deep dive analysis.

**Live Network Applications**— Spirent 320 will bring real time visibility to personnel responsible for ensuring the health of the network and the service riding over it. 320 will prove cost effective in the Live Network with its capability to replicate traffic to multiple network tools, to aggregate traffic to a single tool, and to selectively filter traffic for enhanced monitoring, security and application performance monitoring. In addition, the capability to capture traffic patterns will expose areas in the network that need to be beefed up or redesigned to allow service effective maximum network utilization.

## APPLICATIONS

One of the primary advantages of Spirent 320 is the solution’s flexibility to allow customers to fully utilize their investment in embedded 1G equipment that does not support 10G Network Elements (NE). For example, using , the service provider can MUX traffic up from their 1G equipment to 10G or MUX 10G network traffic down to 1G for their embedded base 1G equipment to support their Backbone, Lab, Data Center, or Live Networks as depicted below.



Spirent 320 allows utilization of embedded network elements

## SPIRENT 320

### TRAFFIC ACCESS DEVICE

#### TECHNICAL SPECIFICATIONS

##### Mechanical and Environmental

<b>Physical Infrastructure</b>	<ul style="list-style-type: none"> <li>• 32 x 10G (SFP+/SFP), and/or 32 X 1G SFP (Fiber or Copper) in any mix</li> <li>• 1 x management (RJ45)</li> </ul>
<b>Dimensions (H x W x D)</b>	<ul style="list-style-type: none"> <li>• 5.2“ x 17.5” x 23.6” rack mounted chassis</li> </ul>
<b>Weight</b>	<ul style="list-style-type: none"> <li>• 43 lbs</li> </ul>
<b>Power</b>	<ul style="list-style-type: none"> <li>• 100-120 V AC, 50-60 Hz, 500 W</li> <li>• DC Power Option Available</li> <li>• Redundant hot swappable supply</li> </ul>
<b>Operating Requirements</b>	<ul style="list-style-type: none"> <li>• 0 to 40<sup>0</sup> C, 12 to 104<sup>0</sup> F</li> </ul>
<b>Certifications</b>	<ul style="list-style-type: none"> <li>• FCC Class A, EN 55022 Class A</li> </ul>
<b>Other Specifications</b>	
<b>User Interfaces</b>	<ul style="list-style-type: none"> <li>• GUI</li> <li>• Text Based Command Line</li> </ul>
<b>Backplane Capacity</b>	<ul style="list-style-type: none"> <li>• 320GB</li> </ul>
<b>Per Port Capacity</b>	<ul style="list-style-type: none"> <li>• 10GB</li> </ul>
<b>Port Functions</b>	<ul style="list-style-type: none"> <li>• Any-to-Any, Any-to-Many, and Many-to-Any</li> <li>• Complex Filters with both Header and Payload based criteria</li> <li>• VLAN :Any IP Header + Payload String Match</li> <li>• VLAN : IP or UDP Header + Payload String Match</li> <li>• VLAN : IPCONV Header + Payload String Match</li> <li>• VLAN : IPV6 Header + Payload String Match</li> <li>• STRING Match: Header and/or Payload</li> <li>• Snapshot Capture, Load Balancing and Full Statistics</li> </ul>
<b>Reports</b>	<ul style="list-style-type: none"> <li>• Tables and Graphs-Paused and Live</li> </ul>

#### SPIRENT SERVICES

Spirent Global Services provides a variety of professional services, support services and education services—all focused on helping customers meet their complex testing and service assurance requirements. For more information, visit the Global Services website at [www.spirent.com/gs](http://www.spirent.com/gs) or contact your Spirent sales representative.

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