

Product Summary Report

March 2008
Report 080330

Product Category:
Network Capture Appliances

Vendor Tested:



Product Tested:
DS5100

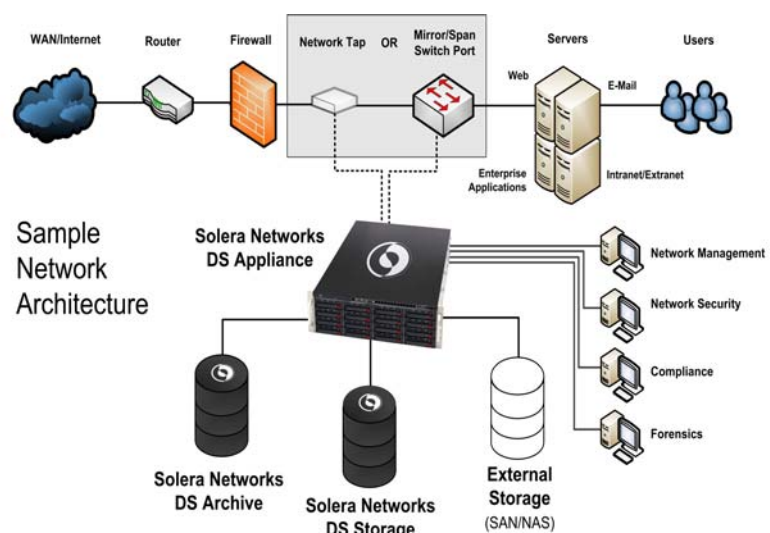


Key findings and conclusions:

- DS5100 sustained throughput of 8.1 Gbps with no packet loss using 1,518-byte packets
- Solera DS unit captured 64-byte packets at a rate of 1.9 million packets per second
- Handles full line rate of 10 Gbps network burst traffic
- Filtering of captured data is enabled through an easy-to-use, Web-based graphical interface
- Can replay captured data for analysis and trouble area remediation

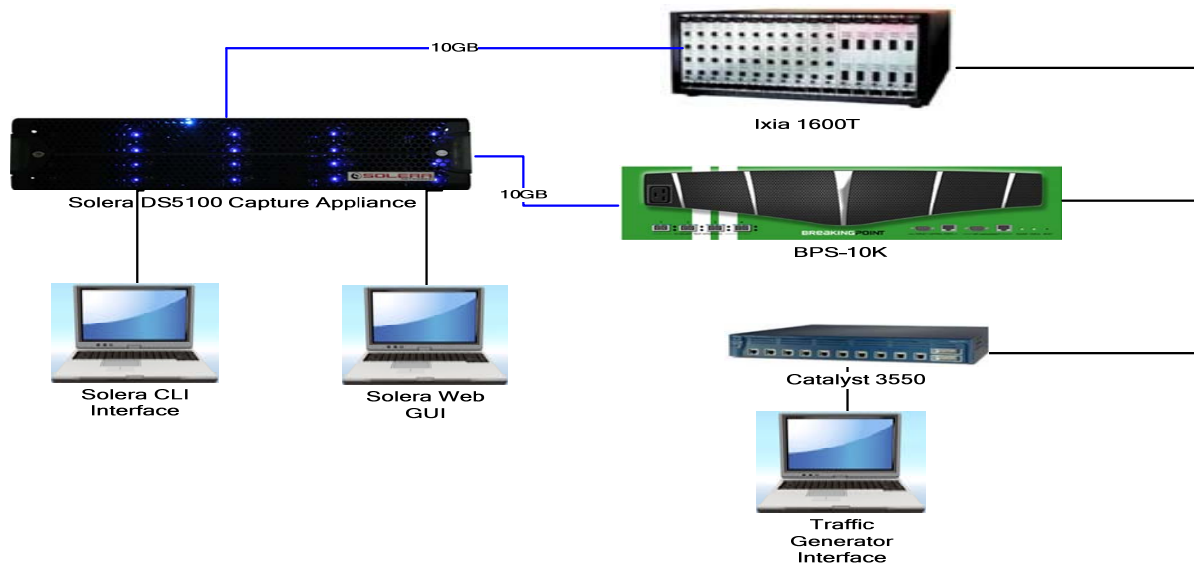
Solera Networks engaged Miercom, to independently evaluate the performance of its Model DS5100 deep packet capture and storage appliance. Testing was conducted at Miercom's lab. The primary goal was to determine the product's ability to capture network data, with no loss of packets, at extremely high speeds. A BreakingPoint Systems BPS-10K and an Ixia 1600T were employed in the test to generate network traffic. A Cisco Systems Catalyst 3550 switch was used to connect the traffic generator to a PC for configuration test management.

Solera Networks claims the DS5100 provides the highest line capture rate in the industry. We verified that the DS5100 was capable of capturing data at a faster rate than any other product we have seen in our lab. A throughput of 8.1 gigabits per second was observed during this evaluation.



A typical configuration using the Solera DS5100 to capture data in real-time and provide it for instant observation and analysis or for storage and archiving.

Test bed for the DS5100:



How We Did It

A BreakingPoint Systems BPS-10K traffic generator and an Ixia 1600T traffic generator were used to generate valid Layer 2 Ethernet traffic and were directly connected via fiber 10Gigabit interface to the DS5100. We configured the BPS-10K to send 200 million packets, in sizes ranging from 64 bytes to 1,518 bytes, and adjusted the traffic flow rate in 100 Mbps increments to find the highest rate for each packet size at which the Solera Networks appliance could capture data with no packet loss. We used the Ixia to double-check the 1,518-byte packet test in a successful effort to test the unit's claimed 8Gbps throughput. We were able to capture at the maximum line rate of 10Gbps for up to 5 seconds with no packet loss.

DS5100 Features

The DS5100 is the premier data capture device in Solera Networks' product line. It is designed for enterprises that require ultra-high-speed capture from a unit that also provides a significant amount of storage.

The device comes with 16TB of onboard storage capacity and supports external storage via fiber. Connecting the unit to Solera DS Storage appliances can extend the storage capacity to beyond 576 terabytes.

The DS5100 attaches to an Ethernet-based network via a mirror (SPAN port), a network tap or an optical splitter. It has two 10 Gigabit Base SX interfaces for data capture and two 10/100/1000 Ethernet interfaces for connection to management devices.

Solera Networks describes the DS5100 as being a "plug and play" unit. Indeed, we encountered no problems during set-up. We

just turned on the power and logged into the Web interface with a browser.

The interface is clean and intuitive. The tab-based dashboard offers control of data filtering, recording, playback and other features. The DS5100's Web-based GUI was simple to use and offered many important administrative and management functions, particularly the ability to filter the type of data being captured.

It provides a wide range of information gleaned from the data capture including descriptions of what data is being captured, the total amount of captured data, the rate of capture and the number of packets dropped. It provides separate results for each of its two data capture interfaces.

The DS5100 can be configured to have no IP address, making it "invisible" to its resident network.

The Benefits of Speed

High-speed data capture products can improve network visibility, avoid business disruption and optimize IT investments.

The current regulatory environment makes it more critical than ever to gain true network visibility of all activity and behavior. This improves security, prevents application performance issues, decreases network management/operation costs and optimizes networks for new roll-outs.

Accurately capturing *all* network traffic is very difficult, especially on 10 Gigabit networks. However, this is where the DS5100's extremely fast and lossless capture rate, combined with its large onboard and external storage capacity, comes into play.

Miercom believes few, if any, other products on the market can record all packets to storage for analysis and playback within 1 ms of capture. The DS5100's capabilities allow for the creation of a comprehensive record of network traffic (including headers and payload).

This limits exposure to threats – both internal and external. It also provides the ability to completely regenerate network traffic and gives IT security staff the ability

to successfully track down hackers, and other intruders. The device's ability to preserve communication streams as they occur can help prosecutors convict lawbreakers because it eliminates doubt about legal chain of evidence custody.

Since the unit provides robust filtering capability, investigating agencies get only the information to which they are legally entitled.

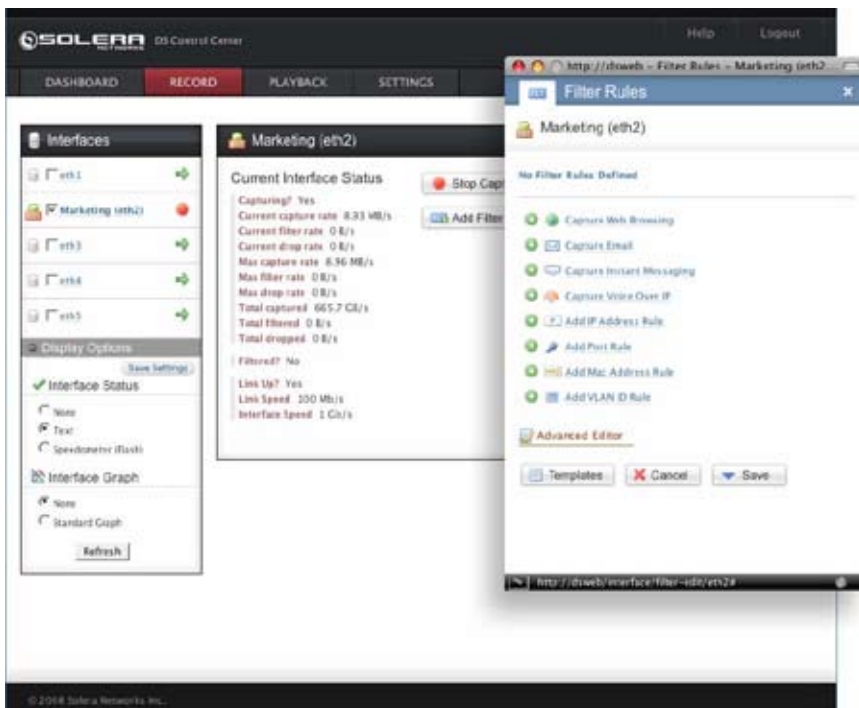
Seamless integration

We appreciated the fact that Solera Networks designed the DS5100 to work seamlessly with most of the available network management, analysis, security and forensics products both custom-built and open-source.

Using SOAP and REST APIs, the DS5100 allows for easy integration with other vendors' network tools.

The DS5100's ability to help network administrators track down sources of high bandwidth drain -- and to reconstruct browser, VoIP, IM and email messaging -- can be leveraged in many beneficial ways.

Miercom believes this, and the fact that the unit can be used for a number of different things, make it a product that has a real capability to increase company ROI.



The DS5100 provides comprehensive filtering of network traffic based on protocol, MAC address, IP address, payload contents or any other bit of information within the packet.

Test and Results

We connected the Solera DS appliance to a BreakingPoint Systems BPS-10K traffic generator and an Ixia 1600T traffic generator. The connection was direct, via fiber.

The traffic generators were connected to our monitoring PC via a Cisco Systems Catalyst 3550 switch. We configured the BPS-10K to send 200 million packets, in sizes ranging from 64 bytes to 1,518 bytes, and adjusted the traffic flow rate in 100 Mbps increments. This was done to find the highest rate for each packet size at which the unit would capture data with no packet loss.

The DS5100 performed admirably during the test. Its throughput while processing 64-byte packets was 1 Gbps and the rate steadily increased as packet sizes enlarged.

Packet Size	Throughput
64 bytes	1 Gbps
128 bytes	1.7 Gbps
256 bytes	3.16 Gbps
512 bytes	5.96 Gbps
1024 bytes	6.7 Gbps
1518 bytes	8.1 Gbps

While capturing 128-byte packets, the appliance operated at a throughput speed of 1.7 Gbps. When the packet size was doubled to 256 bytes, the DS5100's throughput speed jumped to 3.16 Gbps. It hit 5.96 Gbps while capturing 512-byte packets and 6.7 Gbps when fed 1,024-byte packets.

The DS5100s peak performance was attained when using 1,518-byte packets generated by the BreakingPoint. The DS5100 captured 1,518-byte packets at a rate of 634,000 packets per second without losing packets.

Knowing Solera Networks engineers achieved a capture rate of 8.1 Gbps when they tested under slightly different circumstances, we repeated the 1,518-byte packet test using the Ixia generator using "Advanced Stream Scheduling".

During this test, the DS5100 indeed reached 8.1Gbps throughput. The DS5100 achieved the highest rate of zero-data loss of any data capture device we've had in our lab. Miercom also conducted burst testing. Using a burst pattern the DS consistently captured traffic at a maximum rate of 8.4 Gbps and 690,006 pps for over one minute without packet loss. The DS5100 was able to achieve full line rate of 10Gbps with no packet loss for shorter duration bursts.

Dashboard Style GUI

The DS5100 dashboard is used to select, start and stop data capture as well as to replay it.

Importantly, the interface allows users to filter what data is captured by the device. You can filter using the GUI interface by MAC address, IP address or IP address range.

You can also filter by virtual LAN, another nice feature. It should be noted that running at the maximum data capture rate did not produce any slowdown in the responsiveness of the appliance's management interface.

Additionally, we found the unit to be simple to install due to a unique chassis design that uses sliding frame rails.



The DS5100 captures data and it does so without losing packets or otherwise intruding on the network.

Miercom Performance Verified

Based on Miercom's lab test of the Solera DS5100 network traffic capture and storage appliance, Miercom verifies the DS5100 proved adept at capturing data at extremely high throughput with no loss of data.

The DS5100 achieved 8.1 Gbps data capture with zero loss of packets. It is easy-to-use and has a highly-functional Web-based interface.

Miercom also found that Solera Networks DS5100 can provide comprehensive and accurate network surveillance through real-time traffic capture and storage.



See everything. Know everything.™

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Founded in 1988, the company has pioneered the comparative assessment of networking hardware and software, having developed methodologies for testing products from enterprise class VoIP gateways and IP PBX's to carrier grade switching equipment and gateway products. Miercom's private test services include competitive product analyses, as well as individual product evaluations.

Miercom features comprehensive certification and test programs for Interoperability (SIP, H323, IPV6, etc.), Security, Reliability and environmental friendliness: Certified Interoperable™, Certified Reliable™, Certified Secure™ and our newest certification, Certified Green™. Products may also be evaluated under the NetWORKS As Advertised™ program, in which networking-related products must endure a comprehensive, independent assessment of the products' usability and performance.



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