

Spirent AION

Spirent TestCenter LAG and Multihomed Bundle

Overview

Spirent AION is a flexible delivery platform that enables users to achieve improved deployment and provisioning for all their cloud and network testing needs. It is designed to deliver ultimate flexibility in how Spirent TestCenter platforms are purchased and utilized.

The extended platform combines a wealth of industry-leading test solutions with a flexible licensing architecture to support a wide range of next-generation solution-based domain applications.

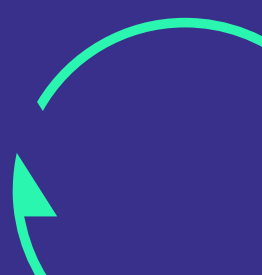
AION offers a centralized management hub to help leverage software and hardware functionalities across all lab users and locations for a simplified management and decision-making process:

- **Flexible purchasing options** available via subscription, consumption-based, and perpetual plans, with the ability to license different bandwidth, scale, and protocol bundles.
- **Flexible deployment options** offered include cloud-delivery, on-prem, and laptop-hosted licensing services.

Enhanced user serviceability delivers always-on platform services from auto-discovery and inventory management to user and workspace administration, notifications, and log aggregation.

Application Overview

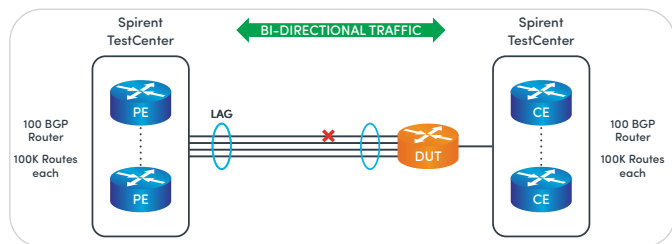
Spirent TestCenter Link Aggregation test solutions support high performance and realistic network topologies for Link Aggregation, IEEE 802.3ad Link Aggregation Control Protocol (LACP) and port grouping which enable Network Equipment Manufacturers, Service Providers and Enterprises to quickly evaluate and troubleshoot a wide range of routing functionality, performance and scalability of any routing device or network over aggregated links or LAG.

- **Real World LAG Test Topology**—emulate end-to-end real world LAG topologies and evaluate key LAG performance characteristics of DUT such as reliability, packet forwarding capability and load balancing efficiency under various test conditions
 - **Network/Service Reliability**—verify scale, reliability, performance of Layer 2 & 3 services including data, multicast, and video delivered via unicast routing, multicast routing, and MPLS technologies over LAG
 - **Increase Productivity**—test and configuration wizards allow quick setup; capture functionality, protocol events and live status views make troubleshooting easy with TestCenter IQ and help save time
 - **Cost-Effective Solution**—complete link aggregation test suite in a single affordable package
 - **Trusted Partner**—benefit from decades of testing experience with Spirent as your guide through a world of complex testing
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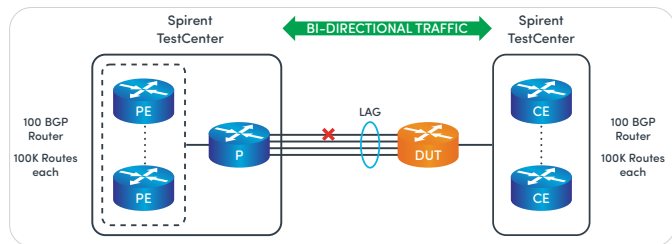
LAG and Multihomed Bundle

The **LAG and Multihomed Bundle** features offer comprehensive testing of link aggregation use cases including control plane and data plane scalability, reliability, redundancy, multi-homing and load balancing efficiency over LAG.

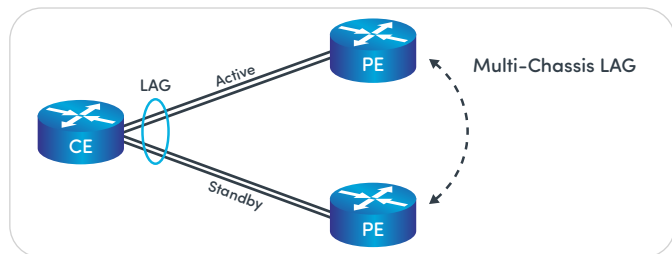
LAG emulation provides the ability to aggregate Spirent TestCenter ports and enables functionality, scalability and redundancy testing of control and data plane over a LAG. Spirent LAG Emulation is the industry leading test solution that allows defining the traffic distribution on the aggregated test port using a predefined algorithm and user defined load balancing attributes. This ability to define the load balancing behavior of the aggregated TestCenter ports enables the user to create end-to-end real-world LAG test topology in a lab environment.



LAG Resilience Test (Link Flap)



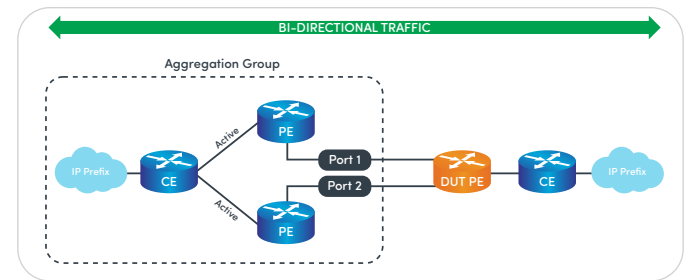
Topology Emulation over LAG



Multi-Chassis LAG

Link Aggregation Control Protocol (LACP) emulation allow users to perform functional and interoperability testing of router and switch implementations. When combined with Spirent TestCenter’s sophisticated data packet generation and analysis, this provides complete testing including reliability, packet forwarding capability and load balancing efficiency of Ethernet link aggregation capable devices.

In Multihoming aggregation mode, emulated devices are multi-homed to 2 or more tunnels on multiple ports in a multi-homing aggregation port group. In Active-Active mode all links are active and data travels via any of the active links, whereas in Active-Standby mode only one link can be active at a time and standby links carry traffic only when the active link fails. Active-Active multihoming is supported for routing control plane with IP Unicast and VPN routes. The multihomed emulations exchange the control packets over any of the active links and switchover to available active links in case of a link failure without session flap.



Micro BFD support for LAG enables user to configure independent micro BFD sessions on every LAG member link in a LAG bundle and monitor the status of individual member link.

This package is an integrated component of Spirent TestCenter™ and works with other Spirent TestCenter components to deliver easy, consistent TCL and Python scripting API and Command Sequencer NoCode automation. The Link Aggregation Bundle can also be used combined with Unicast Routing, Multicast Routing, MPLS/VPN, Access, or Segment Routing control-plane over LAG topology with stateful or stateless data-plane traffic.

Features and Benefits

- Easily configure complex test topologies over LAG port using Topology Emulation over LAG and test control plane and data plane scalability, redundancy, and load balancing over LAG
- Define the load balancing or traffic distribution behavior for the test port using round robin or hashing
- Hashing or load balancing criteria for the test port can be specified by parameters for Layer 2 packets (Ethernet, VLAN, MPLS Headers) and Layer 3 packets (Ethernet, VLAN, MPLS, IPv4, IPv6, TCP, UDP)
- Support for active or stand-by ports in a Multi-Chassis LAG configuration
- Test multi-home or node failure protection test scenarios using Multi-Chassis LAG (MC-LAG)
- Easily aggregate Spirent TestCenter ports using Link aggregation Wizard
- Support for control plane and data plane switch-over to the alternate port of the LAG on primary port or link failure and convergence measurement over LAG
- LAG emulation can be combined with other control plane protocol emulations such as MPLS, unicast routing and access protocols to create complex real world test scenarios in a lab environment
- Support for stateful and stateless traffic over LAG
- Verify QoS for link bundles on the ingress as well as egress side
- Setup ports in multihoming aggregation mode to run control plane and data-plane in Active -Active or Active-Standby mode over aggregated ports
- True Active-Active routing control-plane support for IP prefix and VPN routes with control plane packet exchange in any available active links and switchover to other active links without session flap in case of a link failure
- Verify functional capability of LACP implementations
- Easy test setup with quick definition of multiple Link Aggregation Groups (LAGs), port assignments to LAGs and manipulation of LACP parameters for LAGs
- Support test scenarios including LAG to LAG and non-LAG to LAG configurations
- Measure in real-time the packet rate, loss, re-sequence, delay, delay variation and packet errors for thousands of flows simultaneously
- Use the Command Sequencer with TCL scripts to send SNMP commands, get SNMP data, configure the device under test, run entire test and generate pass/fail results; advanced command sequencer capabilities allow users to extend Spirent TestCenter to meet their test needs

Technical Specifications

Parameter	Description
Link Aggregation	
LACP	IEEE 802.3 AD Link Aggregation Control Protocol <ul style="list-style-type: none"> LAG parameters <ul style="list-style-type: none"> System priority System ID Group name Actor port parameters <ul style="list-style-type: none"> Port number Port MAC address Port priority Key Timeout mode—short or long Active mode—active or passive LAG association
LAG	<ul style="list-style-type: none"> LAG Emulation (Port Grouping) Load balancing criteria <ul style="list-style-type: none"> Round-Robin Hashing <ul style="list-style-type: none"> Layer 2 packets (Ethernet, VLAN, MPLS Headers) Layer 3 packets (Ethernet, VLAN, MPLS, IPv4, IPv6, TCP, UDP) LAG Resiliency (Link Flap) Topology Emulation over LAG Multi-Chassis LAG
Multi-homing	<ul style="list-style-type: none"> Active/Stand-by Active/Active (BGP) (requires AON-PB-RTSW)
Micro BFD	Micro BFD for LAG (requires AON-PB-RTSW)

Ordering Information

Product Number	Description
AON-PB-LAG	AION LAG & MULTIHOMED BUNDLE

About Spirent Communications

Spirent Communications (LSE: SPT) is a global leader with deep expertise and decades of experience in testing, assurance, analytics and security, serving developers, service providers, and enterprise networks. We help bring clarity to increasingly complex technological and business challenges. Spirent’s customers have made a promise to their customers to deliver superior performance. Spirent assures that those promises are fulfilled. For more information visit: www.spirent.com

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