Spirent **TestCenter**™

OpenFlow Switch Emulation

Features

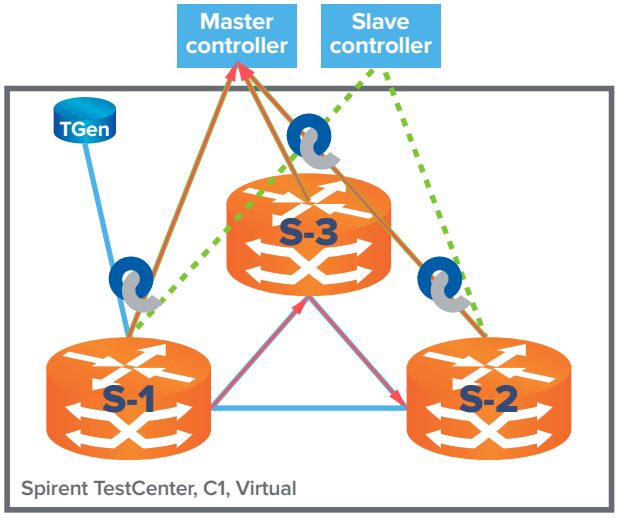
- Test using thousands of real OpenFlow Switches at high scale – number of Switches in connected, number of Packet-Ins
- Test various topologies, Packet-In stability and Flow validation
- Supported on virtual and hardware for 1G to 100G Ethernet
- View all Flows on all Switches and save them to a file
- Packet-In Test to test controller stability over time at high-packet rates from a large number of switches
- Results for every Switch and Controller

Benefits

- Accelerate OpenFlow SDN Controller testing at scale by defining thousands of switches
- Reduced CapEx with no physical Switches needed and lower OpEx with quick setup time of the testbed
- Easy to setup tests at any scale with realistic test environments

Spirent's OpenFlow switch emulation helps overcome many testing challenges for OpenFlow Controller testing at scale. Large-scale testing can be difficult because of the need to assemble many switches, activate and interconnect many virtual Switches. OpenFlow switch emulation stress-tests the Controller by emulating various topologies, real Switches with real links.

With OpenFlow switch emulation you can quickly and easily setup one to thousands of Switches. Once you create your network, Spirent OpenFlow switch emulation will display all the Flows on all Switches and save them to a file. It can also generate OpenFlow "Packet-Ins" from every Switch to the OpenFlow Controller to validate that it can maintain all its connections to all Switches while processing a high rate of Packet-Ins.



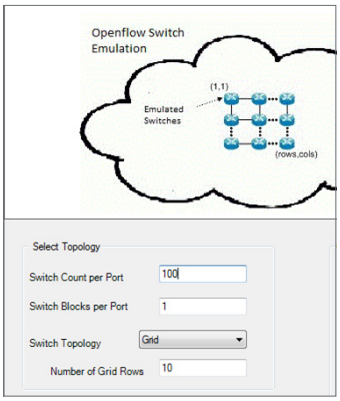
Applications

- Validate if your OpenFlow Controller can maintain connection to its network under heavy load at large scale, understand what happens when scale is exceeded
- Perform Packet-In test from every switch to the Controller at a fixed rated to test your Controller stability over time at high-packet rates from a large number of switches
- Perform ARP-All test from every host on every switch to every host, which will stress the Controller and test the stability while processing all the ARP requests
- Find the limits of the OpenFlow Controller before release. Understand how many packets per second your Controller can handle while still maintaining OpenFlow channels to each and every switch

Spirent **TestCenter**

OpenFlow Switch Emulation

Technical specifications



- Support for OpenFlow v1.3 and v1.0
- Emulate 500 to 2000 Switches per port
- Connect to multiple Controllers
- Configure fixed topologies such as Grid, Linear, or Ring
- Configure independent topologies
- Topology discovery through LLDP
- For each Switch configuration includes:
  - DPID
  - Number of ports
  - For each port: port name, mac address and port type
  - Number of hosts: MAC and IP addresses
- View all Flows on all Switches and save them to a file
- Packet-In Test – Sends packets from every switch to the controller to test stability over time at high-packet rates from a large number of switches
- ARP-All test from every host on every switch to every host, which will stress the Controller and test the stability while processing all the ARP requests
- Results Per Switch: Name, State, Controller Connection Count, DPID, OF Ver, Port Count, Flow Count, IP address
- Results Per Connected Controller: Name, State, DPID, IP address, Role,
  - Flow Mod count (add, mod, delete, rate)
  - Group ModPort
  - Dropped connections
  - Packet-In count & rate
  - Packet-Out count & rate
  - Mod count
  - Table Mod count
  - Automation support – save to script – REST API – Command Sequencer
- Automation support – save to script – REST API – Command Sequencer
- Virtual Support

Supported platforms

- Supported on the Spirent TestCenter MX, MX2, and FX2 family modules for 1G to 100G interface support
- Supported on Spirent TestCenter Virtual
- Supported on Spirent TestCenter C1 and C50

Ordering information

OpenFlow Switch Emulation – Virtual (2000 Switches)	V-BPK-1195B
OpenFlow Switch Emulation – High Scale (500-1500 Switches)	BPK-1195B
OpenFlow Switch Emulation – Functional (100 Switches)	BPK-1195A

Related

OpenFlow Controller Emulation	BPK-1193A
3D Topology Suite	SHG-250/SHG-500
EVPN Emulation	BPK-1311A
FCoE/DCBX Emulation	BPK-1081A
LISP Emulation	BPK-1181A
SPB Emulation	BPK-1182A
TRILL Emulation	BPK-1187A
VXLAN Emulation	BPK-1310A

spirent.com

AMERICAS 1-800-SPIRENT
+1-800-774-7368 | sales@spirent.com

EUROPE AND THE MIDDLE EAST
+44 (0) 1293 767979 | emeainfo@spirent.com

ASIA AND THE PACIFIC
+86-10-8518-2539 | salesasia@spirent.com

Rev. B | 02/16