Vision Edge 40 (E40) Network Packet Broker

The need for real-time visibility into network data has never been greater. Being able to know how applications and services are performing is no longer a nice to have. It is also imperative to have the ability to quickly quantify threats from within and outside of your network.

Current reality is that compute, storage and networks are now software defined and built by the rack and containers. And, in keeping with demand to deliver lower operating expense and offering the best-of-breed in software-defined flexibility, visibility is lost at every layer as installations get dense and traffic moves east-west within a rack and north-south between racks.

More servers, more switching layers, more virtual platform translate to more visibility blindspots.

Keysight's new Vision Edge 40 (E40) and Vision Edge 100 (E100) network packet brokers are designed to provide rack-level visibility through a solution that allows seamless integration into existing hybrid SDN architectures, offering true flexible multi-speed capability, and a comprehensive feature set for the versatility to adapt to the future, ensuring your Security Fabric's strength, all while offering a compelling total cost of ownership.

Key Features

- High density multi-speed network packet broker that is designed for deployment in racks to aggregate traffic
- Exceptionally feature rich stand-alone packet broker that supports 10G to 40G networks
- Easy-to-use web-interface allows you to focus on security rather than configuration
- Comprehensive wizards that make inline tool deployment extremely easy
- Space efficient 1RU design saves rack space in your data center
- Supports port fan-in (4x10G operates at 40G) and fan-out (40G operates at 4x10G) for the maximum number of 10G or 40G ports
- Inline and out-of-band capable for flexibility
- Secure serial console port with authentication
- Support management port IP allow-list
- IFC cluster supports any-to-any topology with tools either a single hop or multiple hops away
- IFC cluster and Inline HA are the most resilient architecture for OOB monitoring and Inline tool deployment respectively
- Native L2GRE/VxLAN origination and termination, including conditional header stripping
- Filtering on IPv4/IPv6 fragments

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Highlights

- High density 1U platform for visibility per rack service
- Supports 1/10G and 40G port speeds, including fan-in and fan-out support
- Inline and OOB capable
- Ixia Fabric Controller (IFC) cluster support
- Fully featured with Keysight's robust NetStack capabilities:
  - Aggregation, replication, filtering and load balancing
  - Keysight's patented filter compiler and three stages of filtering for one of a kind flexibilities in managing network and tool traffic profile
- Software defined platform that offers new features without platform change
- Priority-based filtering for inline and inline HA configurations
- Native L2GRE/VxLAN termination and origination

Figure 1. E40 front   **Figure 2.** E40 back

Use Cases

- For top-of-the-rack visibility for a single site deployment with network and tools
- In a leaf-spine architecture, aggregating across multiple racks in a smaller or microscale data center
- In a distributed network, Vision Edge can be used with Vision ONE/X using Ixia Fabric Controller (IFC) for a single pane of glass management and operation, so tools at the data center can be used for multiple branch monitoring and security
- In a high-availability configuration for the most resilient inline tool deployment, when used in conjunction with Keysight's bypass switches
- IFC cluster in spine-and-leaf topology offers the most resilient OOB architecture that provides auto failover and active-active load balance
- Taking traffic from Cisco ACI environment or other data centers and perform conditional VxLAN header stripping with matching VNI
- With other Vision packet brokers to leverage more advanced packet processing capabilities

Product Capabilities

Netstack capabilities

The Keysight gold-standard baseline filtering functionality for network packet brokers

Three stages of filtering – Filter at ingress ports, in the middle and at egress ports for the maximum flexibility in designing complex Boolean logic without the need of using extra ports for loopback

Dynamic filter compiler – Patented technology that resolves rule overlaps automatically hence makes configuration simple and eliminates human errors

Aggregation – consolidate incoming traffic to optimize port usage and simplify filter logic. Support 1:1, 1:Many, Many:1 and Many:Many traffic mapping
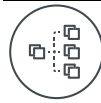
Replication – At the ingress port as well as at the dynamic filter. Replication at the ingress allows the same input to connect to multiple dynamic filters. Replication at the dynamic filter allows multiple tools to get identical traffic from the same dynamic filter.

Load-balancing – sophisticatedly distributes traffic across tools ports for monitoring in a session aware manner to preserve traffic integrity and also to maximize up-time with fail-over protection

Native Tunnel Termination – Terminate and conditional header stripping for L2GRE and VxLAN tunnels. Support L2GRE/VxLAN origination as well.

Inline capabilities

- Supports failsafe serial service chaining, parallel load balancing with spares, or combined topologies
- Customizable heartbeat (HB) support to detect and automatically recover from monitoring and security tool failures
- Multiple HB templates allow each tool to have its own unique HB
- Asymmetric hashing supports common use cases for lawful interception
- Weight based load balance and LBG threshold high-and-low watermark
- Bypass switches and Keysight Vision E40 can have different HB so multi-tier design is possible to increase overall resilience for High Availability (HA)
- Our Active-Active Inline HA solution is the gold standard in the industry and offers the most resilient architecture to protect all kinds of failures

Ixia Fabric Controller (IFC) Clustering

- Ixia Fabric Controller (IFC) clustering offers single pane of glass management for your network packet brokers. NPBs in a distributed environment can be managed and configured, using a single User Interface, as if one centralized visibility and security fabric
- IFC clustering supports any combination of Vision Edge 40/100/10S, Vision ONE/7300/X platforms
- Typical topologies supported include hub-and-spoke, spine-and-leaf, tree, ring, full mesh, partial mesh, or any combination of above
- User configurable number of Controller Node vs. Fabric Node to maximize resiliency
- Supports direct connection for interconnects, or GRE encapsulated interconnects (limited to Vision ONE and 7300 only) when going thru DWDM or WAN devices
- Supports both single hop and multi hop cluster topology
- Best routes are calculated based on least hop-count using Shortest Path First (SPF) algorithm
- Intelligent load balance among Equal Cost Multiple Paths (ECMP) to guarantee session integrity and avoid packet reordering
- A single IFC cluster can scale to more than 50 nodes
- Total flexibility in the number of controller nodes vs. the number of fabric nodes. Full redundancy among controller nodes
- LLDP auto discovery of interconnect links makes cluster configuration easy and error proof
- Automatic or user triggered path re-optimization to avoid failed links or nodes
- IFC cluster offers industry best resilient architecture for OOB monitoring
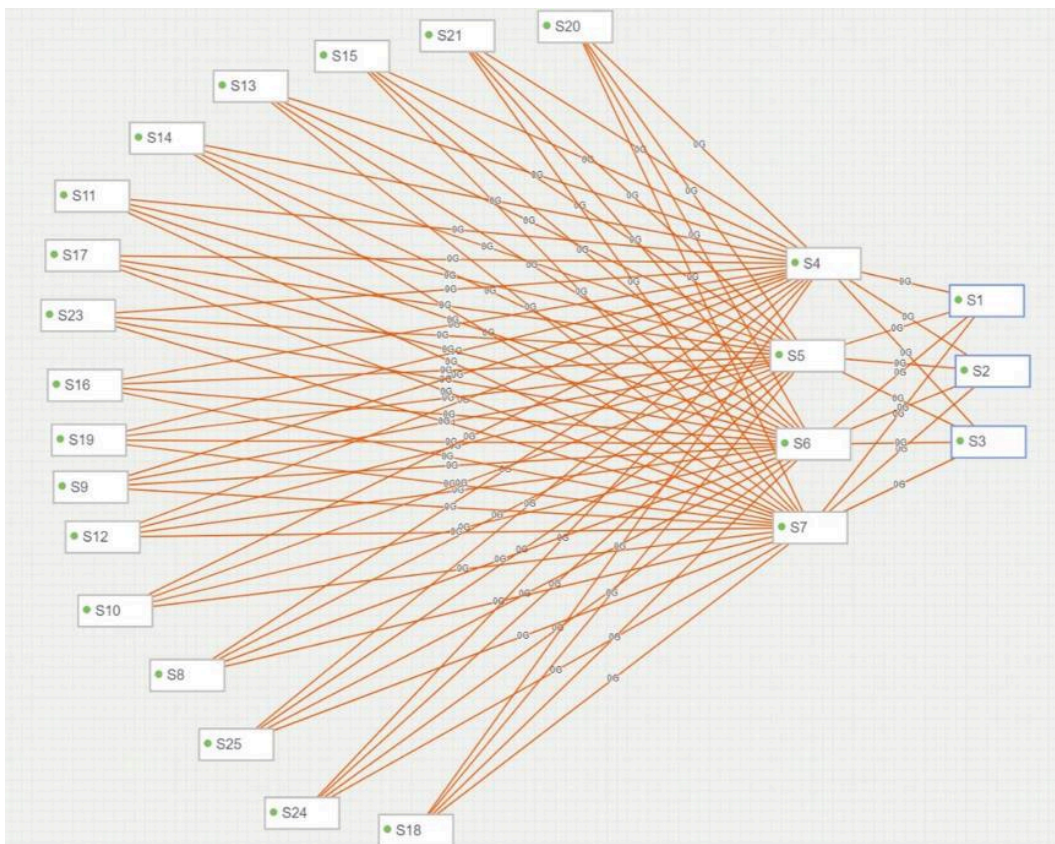
E40 highlights

- Full duplex, non-blocking, and line rate Layer 2 forwarding of 1.44 Tbps
- Capable of (3) speeds - 1G, 10G and 40G networks
- (48) 1G or (48) 10G SFP+ ports
- (6) 40G QSFP+ ports (with a breakout cable, supports both 1G and 10G operation and simplex mode)
- Up to (72) 10G ports (when using the 40G ports with 4x10G breakout cable)
- Up to (18) 40G ports (when using the 4x10G ports with breakout cable for **fan-in** to 40G)
- Hot swap redundant power supplies and fans
- CLI support for Inline and NetStack features
- Both OOB and Inline capable, including support of Inline HA
- Native L2GRE/VxLAN origination or termination, including conditional header stripping
- IFC clustering with other Vision platforms offers single pane of glass management for a cluster of NPBs. IFC cluster offers the most resilient architecture for OOB monitoring
- Available in AC and DC models
- Double your ports on all 1/G10G ports including fan-out ports – use RX for Network and TX for Tool port on single port
- Extra 40G ports by combining (4) 10G ports to operate at 40G natively *(when using a breakout cable)*

Port Configuration and Density

System	10G	40G
Standard Ports Per System	48	6
Max Ports Per System	72 (w/40G breakout)	18 (w/40G breakout)

The E40 systems have forty-eight (48) 1G/10G SFP+ data ports and six (6) 40G QSFP+ data ports. With breakout cables, each of the 40G ports can be broken out into four (4) 1G/10G SFP+ ports, making a total of 72, 1G/10G SFP+ ports available.

Operating Specifications

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Power
2 redundant hot swap AC power supplies
2 redundant hot swap -48V DC power supplies
Input voltage: 90 to 264 VAC @ 50 – 60 Hz
Input voltage: -48 to -72 VDC
Input current: Max 6A @ 100/120 VAC
Input current: Max 3A @ 200/240 VAC
Input current: Max 10A @ -72 VDC
Max Power: 282 W without pluggable optics

Regulatory
CB, EN 60950
UL/CUL
CE Class A

Physical Size, Weight and Environmental
WxDxH: 17.4 x 18.6 x 1.71 inches
Weight: 19.72 lbs with two installed PSU
Regulatory and compliance information will be updated and included here in the future
Operating Temperature: 0 to 40 degrees Celsius
Operating Humidity: 5% to 95% non-condensing
MTBF: 25C - 115,546 hours; 40C - 75,438 hours

Ordering Information

Keysight Vision E40 system

Hardware bundle part number	Description
SYSE40-24PG-AC	Keysight Vision E40 System AC Chassis; Includes license for (24) 1G ONLY ports; Upgrade to (24) 10G speed with LIC-E40-24PX-U; Additional 1G only license not offered
SYSE40-24PG-DC	Keysight Vision E40 System DC Chassis; Includes license for (24) 1G ONLY ports; Upgrade to (24) 10G speed with LIC-E40-24PX-U; Additional 1G only license not offered
SYSE40-8PX-AC	Keysight Vision E40 System AC Chassis with fixed (48) 1G/10G and (6) 40G ports; Includes license for (8) 1G/10G or (2) 40G ports (991-0176)
SYSE40-24PX-AC	Keysight Vision E40 System AC Chassis with fixed (48) 1G/10G and (6) 40G ports; Includes license for (24) 1G/10G or (6) 40G ports or any 1G/10G or 40G combination
SYSE4048PX6P4XDC	Keysight Vision E40 System DC Chassis with fixed (48) 1G/10G and (6) 40G ports; Includes license for (24) 1G/10G or (6) 40G ports or any 1G/10G or 40G combination
SYSE40-24PG-AC-T	IXIA TAA Compliant Vision E40 System AC Chassis with license for (24) 1G ONLY ports (991-1143)
SYSE40-24PG-DC-T	IXIA TAA Compliant Vision E40 System DC Chassis with license for (24) 1G ONLY ports (991-1144)
SYSE40-24PX-AC-T	Ixia TAA Compliant Vision E40 System AC Chassis with fixed (48) 1G/10G and (6) 40G ports; Includes license for (24) 1G/10G or (6) 40G ports (MUST use MM850-PLUS-FN for 10G transceiver)
SYSE40-24PX-DC-T	Ixia TAA Compliant Vision E40 System DC Chassis with fixed (48) 1G/10G and (6) 40G ports; Includes license for (24) 1G/10G or (6) 40G ports (MUST use MM850-PLUS-FN for 10G transceiver) (991-1146)

Keysight Vision E40 port and features

License bundle part number	Description
LIC-E40-ADD-24P	Keysight Vision E40, Port license for an additional (24) 1G/10G or (6) 40G ports or any combination of 1G/10G or 40G combination.
LIC-E40-4PX	Keysight Vision E40, Port license for additional (4) 1G/10G ports (993-0226)
LIC-E40-8PX-U	Keysight Vision E40, Upgrade SYSE40-8PX-AC/DC to SYSE40-24PX-AC/DC system (993-0228)
LIC-E40-IFC	Keysight Vision E40, Enables Ixia fabric controller (IFC) for direct connect to Vision ONE/X or Vision 7300/3 or other Vision Edge platforms; licensed per system
LIC-E40-INLINE	Keysight Vision E40, Enables Inline feature; licensed per system. One per system. Requires previous or adjunct purchase of port licenses to operate.
LIC-E40-TUNL	Keysight Vision E40, Enables NetStack tunneling feature, one per systems (993-0169)

Keysight Vision E40 spare and modules

Hardware part number	Description
SYSE40-SPR-AC	Keysight Vision E40 System AC Chassis with no ports or features enabled; Requires short term license to be installed to operate when required; PREREQUISITES: Cold space license LIC-E40-SPARE for operation
SYSE40-SPR-DC	Keysight Vision E40 System DC Chassis with no ports or features enabled; Requires short term license to be installed to operate when required; PREREQUISITES: Cold space license LIC-E40-SPARE for operation
LIC-E40-SPR	Keysight Vision E40, Cold spare system license; NOTE: Includes max configuration; Activation includes all ports, all inline and Ixia Fabric Controller; Short term activation only to operate Vision E40 cold spare system
ME40-ACPS	Keysight Vision E40 System, (1) AC power module, for the Vision E40 chassis
ME40-DCPS	Keysight Vision E40 System, (1) DC power module, for the Vision E40 chassis
ME40-FAN-ASSY	Keysight Vision E40, (1) FAN module, for the Vision E40 chassis

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