

Vision X Network Packet Broker

Scalable Visibility for Data Centers Today and Tomorrow

Keysight's Vision X is the next-generation network visibility solution. It delivers expandability and flexibility that meets the ever-evolving needs of the data center.

Vision X is a high-density, modular chassis comprised of customizable front modules and multi-speed port choices. It also supports a rear, advanced packet processing module, extending the total packet processing capacity of the chassis.

With a small data center footprint, Vision X conserves both power and rack space. Its footprint, along with its upgradable chassis, will improve your overall ROI now and in the future.

Key features

- **Automated filter compiler** that simplifies configuration using either the powerful GUI or REST API
- **Zero-loss, advanced packet processing** improves tool efficiency through deduplication, packet trimming, and header stripping without dropping packets
- **Space efficient 3RU design** saves rack space in your data center
- **Inline Decryption** provides the ability to decrypt and re-encrypt traffic as a transparent proxy for both inline and out-of-band tool deployments. Offloads the decryption burden from tools to improve ROI and security performance
- **Out-of-Band Decryption** provides the ability to decryption traffic for out-of-band solutions. Offloads the decryption burden from tools to improve ROI and security performance

Highlights

- High-density 100GE, 3RU modular chassis
- 4 front modules, 1 rear module
- Hot-swappable fans, power, and modules
- Up to 2 Tbps of advanced packet processing
- PTP 1588 Time Stamping
- IFC clustering with other Vision platforms to offer single pane of glass management
- Highest performing GTP correlation for evolved packet core visibility



- **Application intelligence** with hundreds of pre-loaded signatures for app detection and reporting, app filtering and metadata generation
- **Comprehensive wizards** make inline tool deployment extremely easy for complex use cases that require tool sharing or VLAN translation
- **Secure serial console port** with authentication
- **Management port IP white listing**
- **IFC cluster** supports any-to-any topology with tools either a single hop or multiple hops away
- **Filtering on IP4/IPv6 fragments**
- **GTP session correlation** with 5G performance and scale

Port Flexibility







Main switch + 4 x NetStack modules:

- Up to 60 100GbE
- Up to 108 50GbE
- Up to 76 40GbE
- Up to 108 10/25GbE

Main switch + 4 x PacketStack modules:

- Up to 44 100GbE
- Up to 88 50GbE
- Up to 76 40GbE
- Up to 108 10/25GbE


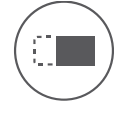




Product Capabilities

NetStack Capabilities	
The Keysight gold-standard baseline filtering functionality for network packet brokers	
 <p>Dynamic Filter Compiler Patented technology that resolves rule overlaps automatically and hence makes configuration simple and eliminates human errors</p>	 <p>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</p>
 <p>Aggregation Consolidate incoming traffic to optimize port usage and simplify filter logic. Supports 1:1, 1: Many, Many:1 and Many: Many traffic mapping</p>	 <p>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</p>
 <p>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</p>	 <p>Source Port Labelling (VLAN Tagging and Untagging) VLAN tag management (ingress tagging and egress stripping)</p>

NetStack Capabilities

Line-rate (up to 2 Tbps), intelligent packet processing. Modify every packet at line-rate using any combination of Keysight's PacketStack (AFM) capabilities.

Flexibly assign advanced packet processing to any port or dynamic filter in 100 Gbps increments.

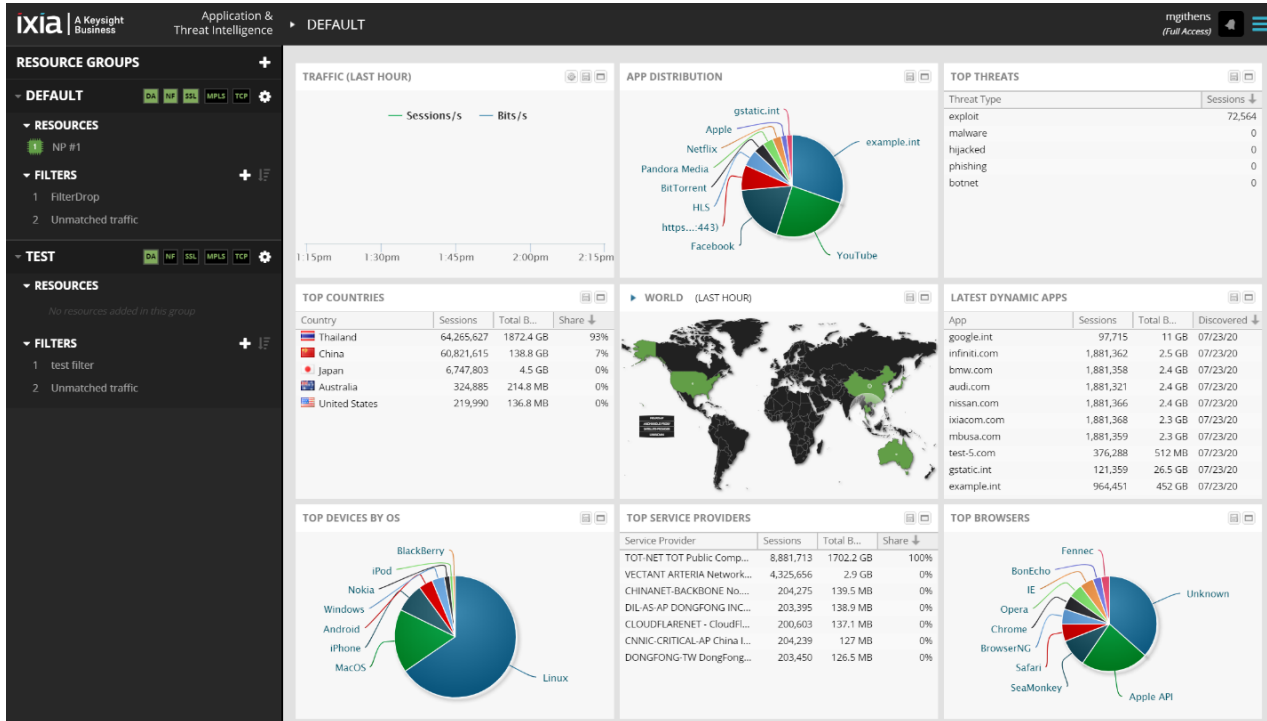
	<p>Deduplication 400 Gbps capacity per module (100G increments) and up to 2 Tbps per chassis</p>		<p>Header Stripping Includes FabricPath, ETag, VNTag, GTP, MPLS, VxLAN, L2GRE, ERSPAN, LISP Generic Header Stripping can be used to strip protocols headers not in above list. Examples are: L3GRE, GENEVE, JMirror, PBB-TE, VSL, OTV, PPPoE</p>
	<p>Packet Trimming (Slicing) To modify packet slice or reta in only relevant data</p>		<p>Timestamping Timestamping (local, NTP, PTP 1588)</p>
	<p>Tunneling L2GRE based tunneling termination over WAN/LAN</p>		<p>Data Masking Protect PII and sensitive data with an offset</p>

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
- Link Force Down (LFD) and its triggered response can bring coordinated link status change in either standalone or High Availability (HA) mode
- Tool Sharing (TS) allows the same set of inline tools to be shared among multiple network segments without cross talk
- VLAN translation allows inline tools that don't support QinQ to enjoy Tools Sharing as well
- Asymmetric hashing supports common use cases for lawful interception
- Bypass switches and Keysight Vision ONE 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
- Hardware option to support integrated Active SSL. Integrated ASSL enables significant saving of both deployment and troubleshooting time
- ThreatARMOR bundles eliminate decryption of known-bad traffic, and reduce attack surface and non-actionable security alerts

AppStack Capabilities

- Classifies traffic based on the follow:
 - Application, geography, device information and service provider
 - Application signatures are regularly update via ATI subscription
- Regular expression matching
- Multiple actions can be taken on matching sessions
 - Forward all related packets to an analysis tool
 - Drop traffic that matches certain filters
 - Perform packet modifications such as L4-7 data masking, MAC header rewrite
 - Enhanced NetFlow v9 and IPFIX v10, optionally adding IxFlow fields can be generated and sent to up to 10 collectors
- Simple pricing
 - ATI subscription includes all current and new features and application signatures released



Inline Decryption Capabilities

- Delivered through an Application Module with dedicated cryptographic processor
- Transparently intercepts and decrypts TLS traffic, allows inspection by tools, then re-encrypts the traffic, and transmits it forward
- Supports all modern TLS encryption schemes
- Support for both forward proxy and reverse proxy in the same instance
- Supports Host Categorization Service for decryption bypass of site types such as Financial and Health
- Offload the decryption from a service chain of multiple security tools
- Dedicated high-performance cryptographic processor handles up to 25 Gb aggregate TLS traffic. Does not impact ability to use any other feature on the Vision X

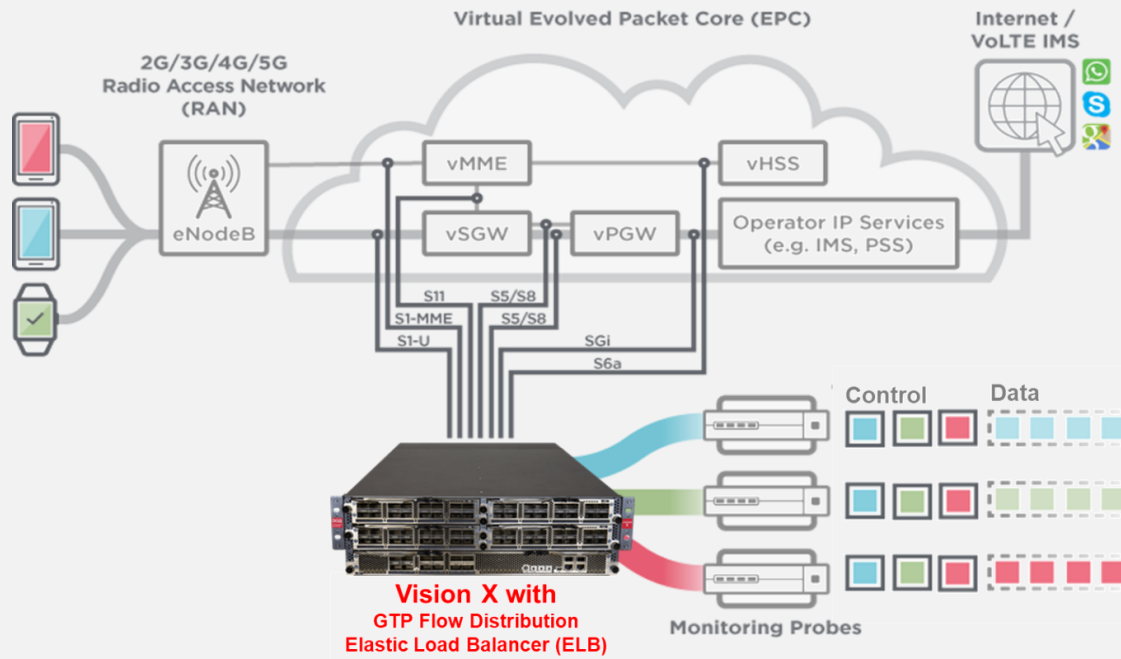
Out-of-Band Decryption Capabilities

- Delivered through an Application Module with dedicated cryptographic processor
- Supports all non-ephemeral SSL & TLS encryption schemes
- Offload the decryption from a service chain of multiple security tools
- Dedicated high-performance cryptographic processor handles up to 25 Gb aggregate SSL/TLS traffic. Does not impact ability to use any other feature on the Vision X

MobileStack Capabilities

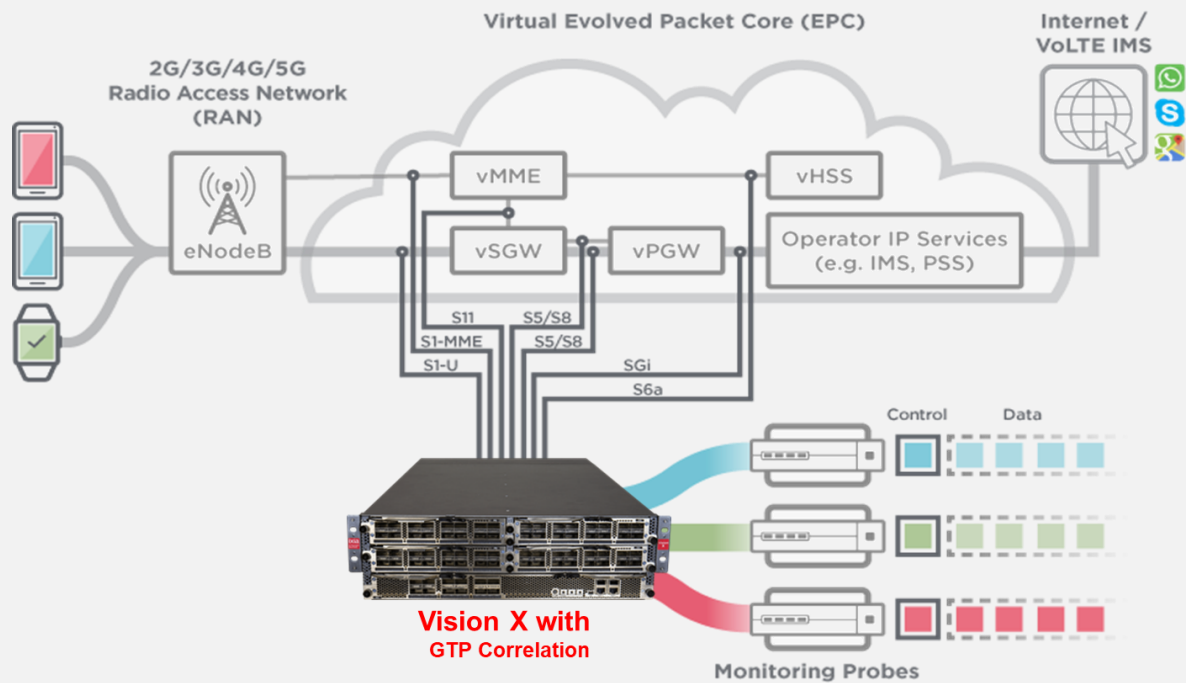
- High-performance 4G and 5G mobile network visibility that intelligently delivers subscriber traffic to monitoring probes and tools through two main product options:
 1. GTP Flow Distribution (Elastic Load Balancing)
 2. GTP Correlation

GTP Flow Distribution (Elastic Load Balancing)



- Utilize Elastic Load Balancer (ELB) to load balance GTP traffic using GTP Flow Distribution
- Delivers smooth GTP-U IP flow distribution across multiple tool ports
- Broadcasts GTP-C packets to one or multiple tool ports
- Handles up to 2TB of GTP traffic per Vision X chassis within dedicated hardware acceleration architecture for high performance

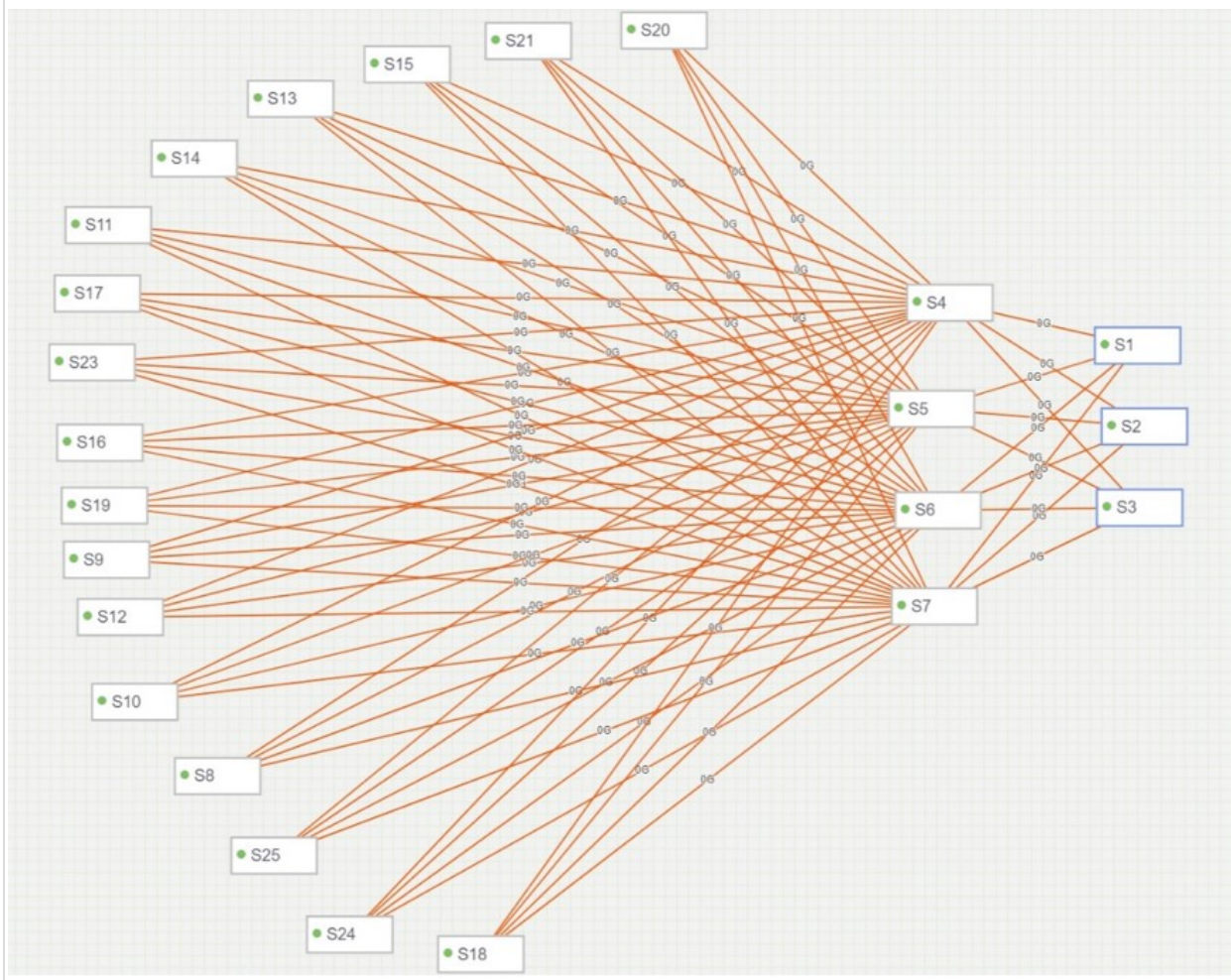
GTP Correlation



- Robust processing architecture delivers correlated GTP data to monitoring probes and tools consistently with up to 1600G GTP-U and up to 512 M subscribers
- Utilizes subscriber correlation, sampling, and filtering to dramatically reduce probe and tool costs while maintaining subscriber Quality of Experience (QOE)
- Allows multiple session filters to maximize flexibility and ease-of-use
- Provides integrated session table backup allows for session table persistence between reboots and upgrades
- Features multiple allow listing capacity to maintain visibility into important subscribers while sampling

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
- User triggered path re-optimization to avoid failed links or nodes



Specifications

General specifications	
Performance <ul style="list-style-type: none"> Fully non-blocking 6.4Tb switch capacity Line-rate across all ports with filtering enabled 10GbE/25GbE/40GbE/50GbE/100GbE support 	Management <ul style="list-style-type: none"> SNMP v1, v2, v3 support Local, RADIUS, TACACS+ support (members and groups) Granular access control features Event monitoring and logging Syslog IT Automation control with REST API 2 management interfaces Supports management port IP whitelisting
Physical specifications	
Size and weight <ul style="list-style-type: none"> 3RU high rack mountable Dimensions: 5.25" H x 17.5" W x 31" D (inches) Weight: 125 lbs. (57 kg) 	AC power <ul style="list-style-type: none"> Quad hot swappable AC power supplies Input AC Voltage: 90-240 VAC RMS Maximum power, each power supply: <ul style="list-style-type: none"> 100 VAC input – 1260 W 110-120 VAC input – 1400 W 200-240 VAC input – 1500 W Maximum power/heat dissipation for system: 2400W / 8200 BTU/hour
Safety certifications and compliance <ul style="list-style-type: none"> IEC/UL/CSA 60950-1, IEC/UL/CSA 62368-1, CE, ETSI EN 300 386, FCC Part 15B - Class A, ICES-003 - Class A, AS/NZS CISPR 32 and 24, KN 32 and 35, BSMI 	DC power <ul style="list-style-type: none"> Quad hot swappable DC power supplies Operating input voltage: -40 to -72 VDC Maximum power, each power supply: 1500 W Maximum power/heat dissipation for system: 2400 W / 8200 BTU/hour
Country of origin <ul style="list-style-type: none"> Malaysia 	
Operating specifications	
Temperature <ul style="list-style-type: none"> Operating: 5 °C to 40 °C Short-term*: -5 °C to 55 °C (*not to exceed 96 consecutive hours) Short-term* with fan failure: -5 °C to 40 °C (*not to exceed 96 consecutive hours) 	Humidity <ul style="list-style-type: none"> Operating: 5% to 85% (non-condensing) Short-term*: 5% to 90% (non-condensing) (*not to exceed 96 hours)

Ordering Information

Vision X Chassis

Part number	Description
SYSVX-BASE-AC	Keysight Vision X Base system, AC.
	Includes chassis, 12-port 100G Switch card, 4 AC power supplies, 5 fans and 4+1 smart blanks
SYSVX-BASE-DC	Keysight Vision X Base system, DC.
	Includes chassis, 12-port 100G Switch card, 4 DC power supplies, 5 fans and 4+1 smart blanks
SYSVX-CHAS-AC	Keysight Vision X Chassis Base system.
	Includes chassis, 4 AC power supplies, 5 fans and 4+1 smart blanks, main switch card not included
SYSVX-CHAS-DC	Keysight Vision X Chassis Base system.
	Includes chassis, 4 DC power supplies, 5 fans and 4+1 smart blanks, main switch card not included

Vision X Interface Modules, Licenses, Options and Accessories

Main Switch and Interface Modules

Part number	Description
MVX-SWCH	Keysight Vision X Switch Card with (12) 100G ports
MVX-NS12PC	Keysight Vision X, NetStack 12-port 100G module
MVX-PS8PC	Keysight Vision X, PacketStack 8-port 100G module (Front)
MVX-PS-R	Keysight Vision X, Rear PacketStack module
MVX-AM4PC	Keysight Vision X, App Module (4) port 100G module; Port and feature licenses sold separately

Port and Features Licenses

Part number	Description
LIC-VX-1PC	Keysight Vision X, Port license for (1) 100G multispeed port
LIC-VX-PS2C	Keysight Vision X, 200 Gbps PacketStack feature license. Includes Data Masking, Packet Trimming, Packet Timestamping, Add trailer with original packet length, Trailer Stripping
LIC-VX-DDUP	Keysight Vision X, (1) Packet Deduplication feature license
LIC-VX-STRP	Keysight Vision X, (1) Header stripping feature license
LIC-VX-TUNL	Keysight Vision X, (1) Tunneling feature license
LIC-VX-SPR	Keysight Vision X, (1) Cold spare system license
LIC-VX-IFC	Keysight Vision X, (1) Fabric connectivity feature license

AppStack Licenses

Part number	Description
LIC-VX-SSAS	Keysight Vision X, AppStack perpetual feature; Licensed for one (1) CPU on MVX-AM4PC module; Max (2) per module
SUB-VX-SSAS	Keysight Vision X, one (1) year AppStack feature subscription; Licensed for one (1) CPU on MVX-AM4PC module; Max (2) per module
SUB-VX-APTL	Keysight Vision X, one (1) year subscription; Includes AppStack signature updates and threat intelligence feature updates, QTY (1) per system

Inline Decryption Licenses

Part number	Description
LIC-VX-ASSL	Keysight Vision X, Active SSL perpetual feature; Licensed for one (1) CPU on MVX-AM4PC module; Max (2) per module
SUB-VX-ASSL-HCS	Keysight Vision X, Host Categorization Service subscription; Licensed for one (1) CPU on MVX-AM4PC module; Max (2) per module
SUB-VX-ASSL	Keysight Vision X, one (1) year Active SSL and Host Categorization Service subscription; Licensed for one (1) CPU on MVX-AM4PC module; Max (2) per module

Out-of-Band Decryption Licenses

Part number	Description
LIC-VX-PSSL	Keysight Vision X Decryption Out-of-Band perpetual feature; Licensed for one (1) CPU on MVX-AM4PC module; Max (2) per module
SUB-VX-PSSL	Keysight Vision X, one (1) year Decryption Out-of-Band subscription; Licensed for one (1) CPU on MVX-AM4PC module; Max (2) per module

MobileStack Licenses

Part number	Description
LIC-VX-MS2C	Keysight Vision X, MobileStack perpetual feature; GTP Correlation, GTP-U for up to 200G on MVX-PS-R or MVX-PS8PC Module; Max (2) per module
LIC-VX-GTP	Keysight Vision X, MobileStack perpetual feature; GTP Correlation, GTP-C for up to 64M subscriber sessions per CPU on MVX-AM4PC module; Max (2) per module
LIC-VX-GTPFD2C	Keysight Vision X, 200G MobileStack GTP Flow Distribution (ELB) for up to 200G on MVX-PS-R or MVX-PS8PC Module; Max (2) per module

Power Supply

Part number	Description
MVX-DCPS	Keysight Vision X, (1) DC Power Supply
MVX-ACPS	Keysight Vision X, (1) AC Power Supply

Fan Module

Part number	Description
MVX-FAN	Keysight Vision X, (1) FAN module

Accessories

Part number	Description
MVX-CBLM	Keysight Vision X, (1) Cable Management
MVX-SBF	Keysight Vision X, (1) Smart Blank (Front)
MVX-SBR	Keysight Vision X, (1) Smart Blank (Rear)

Learn more at: www.keysight.com

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