IXIA XSTREAM™ 40

AGGREGATION, FILTERING, AND LOAD BALANCING FOR 10GBE/40GBE NETWORKS

The need to monitor and inspect all traffic on high-volume 10GbE and 40GbE networks pressures organizations to invest heavily in new 10/40GbE tools, or risk oversubscribing their current tools. The Ixia xStream™ 40 is a network packet broker (NPB) for high-speed networks, purpose-built for fail- safe inline security tools deployment and out-of-band network traffic monitoring.

The xStream 40 offers a comprehensive set of high availability (HA) features that are critical for fail-safe inline security tools deployment. Smart load- balancing enables deployment of multiple tools in parallel to increase the overall throughput, thus removing bottlenecks typically seen on a single security device. It also supports tools such as SSL decryptors, intrusion prevention system (IPSs), firewalls, and web accelerators in serial for service-chaining. This enables banks, retailers, and government and health organizations to support many different enterprise network deployment scenarios.

The xStream 40 also features Ixia's unique "Double Your Ports" feature (simplex connections), which provides industry-leading port density in a compact form factor. Moreover, each of the four 40GbE ports can be configured as four independent 10GbE ports, allowing a maximum of 64 10GbE ports. Furthermore, you can even combine four independent 10GbE ports into a single 40GbE, using the same MTP to LC fan-out cable, effectively yielding a maximum of 16 40GbE ports in the chassis.

HIGHLIGHTS

- Comprehensive high availability (HA) features to support fail-safe inline security tools deployment

- Inline security tools can be deployed in serial (service- chaining) or in parallel (load balancing), or both to increase the throughput yet

- maintain maximum flexibility

- Tool-sharing reduces costs by allowing multiple departments in an organization to utilize the same monitoring tool to monitor multiple links throughout the organization

- Filtering increases efficiency and maximizes tool utilization by sending each tool only the traffic it needs

- Tool load balancing protects the investment in existing monitoring tools by splitting the load from 40GbE and 10GbE links to 1GbE and

- 10GbE tools

- Relieves oversubscribed tools through load balancing and packet slicing

- "Double Your Ports" feature doubles port density
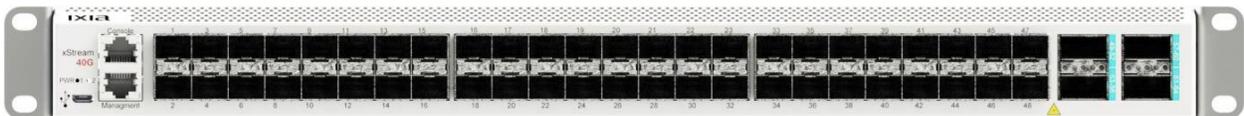
PRODUCT CAPABILITIES

LOAD BALANCING SOLUTION

The xStream 40 is a purpose-built appliance for distributing a traffic load to multiple tools. SFP+/QSFP+ ports and an integrated multi-speed flow distribution engine make xStream 40 ideal for distributing and load-balancing traffic from 10GbE and 40GbE links to multiple 1GbE and 10GbE tools.

It can also aggregate traffic from multiple 1GbE and 10GbE links and distribute it to 1GbE, 10GbE, or 40GbE tools. With the addition of a monitoring load balancer, these multiple 1GbE, 10GbE, or 40GbE tools can share the load to process increasing volumes of traffic more cost-effectively than investing in new 40GbE or 10GbE tools. Not only is the CAPEX lower, but major savings also accrue through avoiding the disruption and learning curve of integrating complex new tools into the environment.

HIGH AVAILABILITY

Highly reliable and foolproof HA feature supports Active-Active and Active-Standby modes with both Auto Sync and Manual Sync options to maintain configuration and state synchronization between the primary and secondary xStream 40 units. The HA link between the primary and secondary units can also be protected with a second link connected using a pair of spare ports. Load Balancing Group (LBG) supports spare ports with N:M tool redundancy where N active ports are protected by M warm standby tools. When tools are deployed in inline serial (service chaining), tools in the front can be safely bypassed when they fail so tools in rear can continue inspecting the traffic. Coupled with HA features in Ixia's iBypass series, complex use cases can be implemented with extreme high availability.

TIME STAMPING

xStream 40 supports timestamping of packets on the fly at line rate with nanosecond accuracy, supporting high- speed, low-latency trading environments. Using the PTPv2 (IEEE 1588) protocol, xStream 40 guarantees that the timestamping will remain accurate. The timestamp can be appended to packets on the fly with or without recalculation of the CRC.
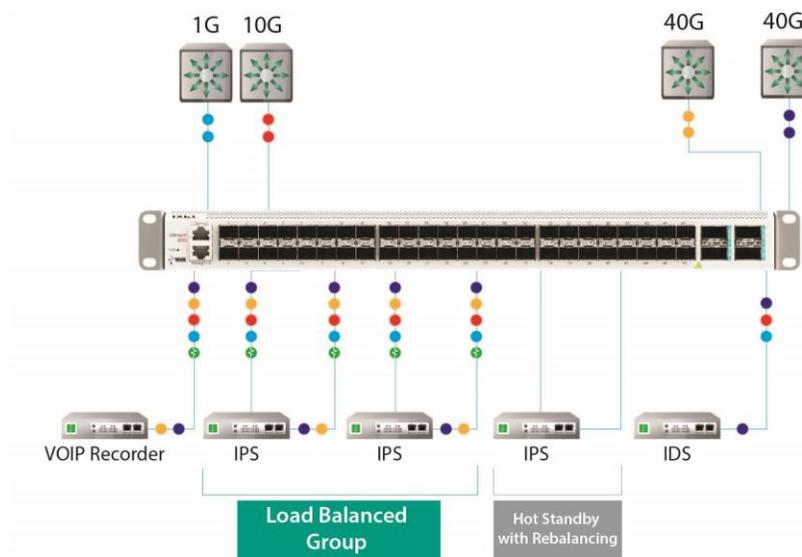
PRODUCT FEATURES

HIGH AVAILABILITY FEATURES

- Fail-safe inline security tool deployment in serial (service chaining) or in parallel (load balancing) or both

- In-band or out-of-band HeartBeats (HB) packets for tool health checking; HB packets are also customizable

- Link Failure Detection (LFD) maintains synchronized link status on both sides of a tool or network

- Smart re-balancing to cause least disruption on exiting traffic and tools

- Session-aware load balancing with symmetric and asymmetric hash algorithms

- HA supports Active-Active, or Active-Standby modes; Auto Sync or Manual Sync of configuration and operation status; and highly reliable synchronization engine with spare ports for protection

- Spare ports with loopback capability to support inline fail-safe security tools deployment

GENERAL

- Aggregation of input traffic from multiple links

- Any-to-any, many-to-many port mapping

- Purpose-built tool for both inline and out-of-band load balancing

- Supports tool-sharing, in which multiple independent links share a pool of monitoring devices

- TapFlow multi-layer filtering engine for layers 2-4 filtering

- Timestamping with nanosecond accuracy

- VLAN tag management (ingress tagging and egress stripping)

- RMON statistics (packet count, utilization, etc.); all counters exportable as CSV files

- Any port can be used for monitor or network

- Up to 64 10GbE SFP+ to 4 QSFP+ 40GbE connections

- Advanced SNMPv3 integrates with all major NMSs and Ixia's Indigo Pro

- Graphical "Drag and Draw" Filters

- MPLS label filtering

- Port rate limiting

- Link-state awareness

- Packet slicing

- Dual redundant hot-swappable AC or DC power supplies

- Role-based access control management

- "Double Your Ports" feature doubles port density

- Supports ftp, sftp, and scp for file and configuration transfer

- Automatic recovery of applications and processes when they cease to operate properly

- Pay-as-you-go licensing: 8-port and 12-port license bundles (QSFP = 4 ports); functional license tiers for aggregation, filtering, and load balancing

SPECIFICATIONS

PERFORMANCE	
Hardware Throughput	1.28Tbps; no packets dropped as long as monitor traffic does not exceed monitor port bandwidth
Architecture	Cut-Through
Speeds	1Gbps, 10Gbps, 40Gbps
Latency	Ultra-low latency of 350 nanoseconds, any packet size, any-port to any-port, any amount of regeneration and filtering (excluding aggregation head-of-line blocking delays)
Load Balancing	Flow coherent, hash-based, 5-tuple (SIP, DIP, SPORT, DPORT, protocol), 2-tuple (SIP+DIP) for GTP and other protocols, or other combinations of L2-L4 header fields including SMAC, DMAC, ethertype, and VLAN; out-of-band, inline, tool sharing; 40G-to- 10G and 10G-to-1G distribution; link-state awareness; Heartbeat monitoring of inline tool health; 1 to 20 independent load balance groups with up to 20 load-balanced outputs per group. Mixed speed/throughput load balancing
High Availability	Two xStream devices can be connected together via network ports to form a high availability solution, with configuration and state constantly synchronized between them; HA link can be protected via a second link connected via a pair of spare ports
Timestamping	Timestamping with nanosecond accuracy and support for PTPv2 (IEEE 1588)
Port Mapping	Aggregation, any number of ports; regeneration, any number of ports; any-to-any, any-to- many, many-to-any, and many-to-many; any port can be used as an input, an output, or both simultaneously
TapFlow	Filter by IP source address, IP destination address, MAC source address, MAC destination address, source port, destination port, protocol, network port or port group, VLAN
IP Options	MPLS Label, User Defined
Network Intelligence	Current utilization, total packets, total bytes, CRC errors; more than 100 detailed traffic statistics and counters including RMON; all counters can be exported as CSV files
Packet Slicing	Truncate packet on the fly to increase scalability

PERFORMANCE

TACACS+/RADIUS	Server allows authentication of users from external AAA servers using either RADIUS or TACACS+ protocols
Device Management	Web UI, Serial console, SSH, (CLI), FTP/SFTP/SCP file transfers, SNMPv3, SNMPv2, SNMPv1, remote software upgrades, back-up and restore configuration, role-based access control management, NETCONF

Chassis

Environment	• Operating Temperature: 0˚C to 40˚C • Storage Temperature: -10˚C to 70˚C • Relative Humidity: 10% min, 95% max, non-condensing
Mechanical	• Dimensions: 1.72" high x 16.5" deep x 17.7" wide • Mounting: Surface or 19" rack mount (1U) • Weight: 15.0 lbs
Connectors	• Ports: (48) SFP+, (4) QSFP ports, (64) SFP+ with a splitter cable • Management Port: (1) RJ45 10/100/1000 Copper • Configuration (CLI) Port: (1) Cisco DB9 to RJ45 • DC Receptacle: Terminal peak, 12-14 gauge wire
Hot-Swappable Modules	• Power: (2) AC universal or (2) -48VDC, redundant • Fans: (5) hot-swappable modules (4+1 configuration)
Electrical Interface	• AC Input: 100-240VAC, 5.29-2.2A, 50/60Hz • DC Input: -40VDC nominal -40 to -72VDC, 13.9A
Indicators	• (All ports) Link LEDs • (All ports) Activity LEDs • (2) Power LEDs

CERTIFICATIONS

Safety	MET, CE
EMC	FCC, VCCI, C-Tick, KC, ME06, CCC, AR
Environmental	RoHS, WEEE
Protocol	Fully IEEE 802.3 compliant

CERTIFICATIONS	
Security	STIG and PCI security profiles, management port firewall, audit logging, HTTPS, import SSL certificate, AAA services with TACACS+/RADIUS

ORDERING INFORMATION

HARDWARE

XT-40-BASE-AC

xStream 40, AC power supplies

XT-40-BASE-DC

xStream 40, DC power supplies

SOFTWARE

XT-40-AGG

xStream 40 Aggregation

XT-40-DIR

xStream 40 Filtering

XT-40-LB

xStream 40 Load Balancing

SOFTWARE UPGRADES

XT-40-UAD

xStream 40, upgrade Aggregation to Filtering

XT-40-UAL

xStream 40, upgrade Aggregation to Load Balancing

XT-40-UDL

xStream 40, upgrade Filtering to Load Balancing

**IXIA WORLDWIDE
HEADQUARTERS**
26601 AGOURA RD.
CALABASAS, CA 91302

(TOLL FREE NORTH AMERICA)
1.877.367.4942
(OUTSIDE NORTH AMERICA)
+1.818.871.1800
(FAX) 818.871.1805
www.ixiacom.com

**IXIA EUROPEAN
HEADQUARTERS**
IXIA TECHNOLOGIES EUROPE LTD
CLARION HOUSE, NORREYS DRIVE
MAIDENHEAD SL6 4FL
UNITED KINGDOM

SALES +44.1628.408750
(FAX) +44.1628.639916

**IXIA ASIA PACIFIC
HEADQUARTERS**
101 THOMSON ROAD,
#29-04/05 UNITED SQUARE,
SINGAPORE 307591

SALES +65.6332.0125
(FAX) +65.6332.0127