

IXNETWORK OVERVIEW—L2/3 NETWORK INFRASTRUCTURE PERFORMANCE TESTING

DATA SHEET

SCALES TO HANDLE THE MOST POWERFUL DEVICES AND LARGEST NETWORKS

PROBLEM: NETWORK COMPLEXITIES PUT PERFORMANCE TO THE TEST

Organizations have long tested their networks for scale and performance. But as networks become increasingly complex, so do the challenges of ensuring peak network performance and resiliency. Forget about simply testing for sluggish response times—the right testing tool must now assess complex network topologies with thousands of network devices, emulate sophisticated traffic flows, and conduct stress tests under countless scenarios and network conditions.

SOLUTION: A RELIABLE TEST SYSTEM FOR COMPLEX AND UNPREDICTABLE NETWORKS

IxNetwork delivers performance testing under the most challenging conditions. Capable of generating multiple terabytes of data and analyzing up to 4 million traffic flows simultaneously, IxNetwork scales to handle the most powerful devices and the largest networks. With its enhanced real-time analysis and statistics, this powerful solution emulates everything from routing and switching, data center Ethernet and SDN to broadband access and industrial Ethernet for comprehensive testing. And graphical user interface (GUI) wizards make it easier for our customers to meet a wide range of performance requirements with minimal resources.

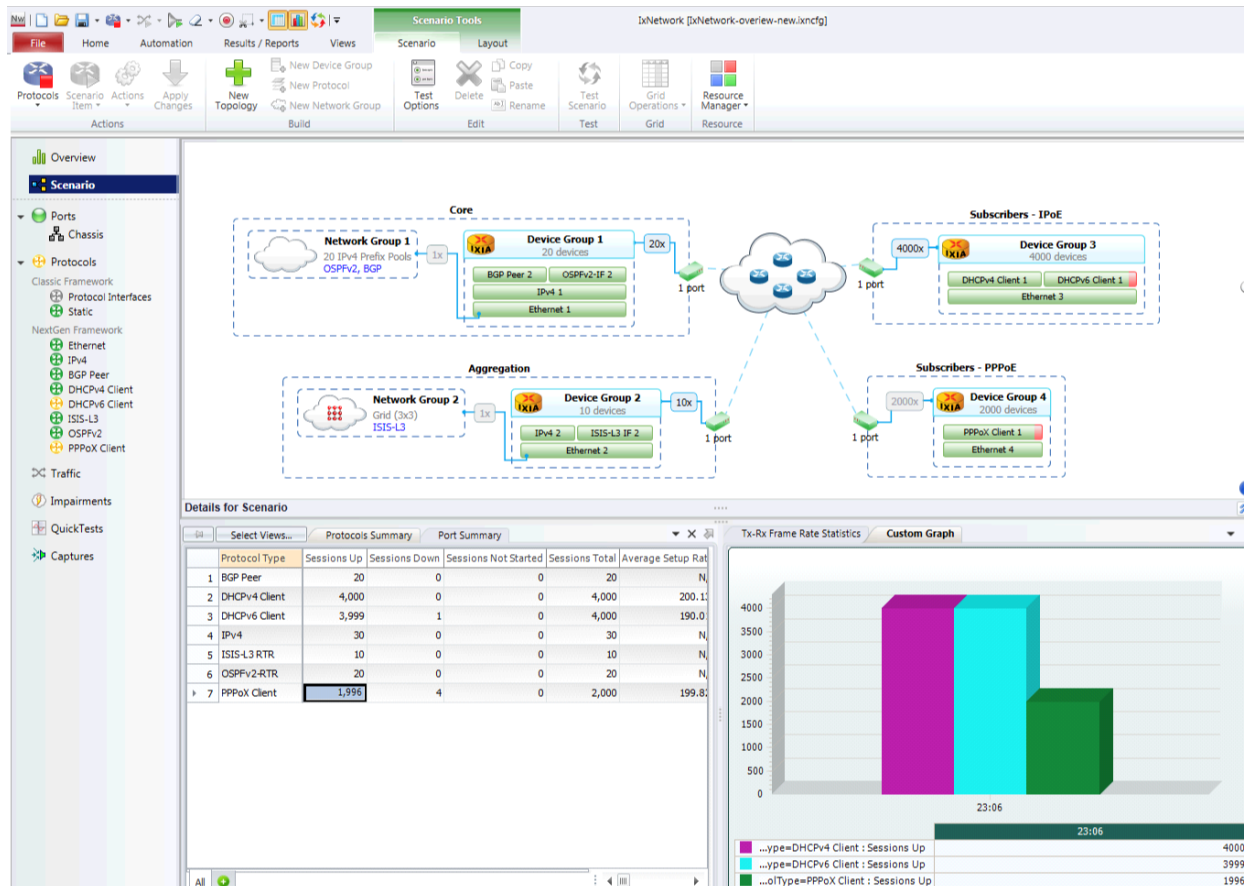
KEY FEATURES:

- Offers test coverage from 1G to 400G Ethernet
- Provides comprehensive protocol coverage for routing/switching, multiprotocol label switching (MPLS), broadband access, industrial Ethernet (IE), data center networking, and software-defined networking (SDN)
- Generates traffic flows that mimic realistic user applications and scenarios
- Works smoothly in virtualized network environments, and runs from any commercially available compute environment
- Delivers end-to-end test system automation

HIGHLIGHTS

- **Save capital expenditure in testing**—emulate a very large number of routers/switches without using real devices
- **Reduce test time**—use visual topology-based protocol configuration and comprehensive analytics with drill-down and learned information
- **Identify problems in the labs before deployment in the field**—realistically mimic real-world conditions with granular traffic generators and stateful AppLibrary
- **Understand performance and scaling bottlenecks**—rely on unparalleled density, scale, and performance to stress and take down the most powerful networking devices

- Performs rapid isolation of service violations, including thorough traffic-flow analysis



Multi-protocol visibility with protocol drill-down and control

SPECIFICATIONS

PROTOCOLS

IxNetwork emulates a wide variety of protocols using Ixia's CPU-based test port. Each test port supports an independent multi-core CPU running protocol emulations under a Linux operating system. Using the IxNetwork test application, each Ixia test port is capable of emulating thousands of routers or bridges with millions of reachable networks and hosts. Users can easily scale the size of emulated topologies by adding additional test ports. Combined with line-rate traffic generation and QoS measurement capabilities, the CPU-based load modules verify advertised topologies and networks for reachability and QoS performance.

TECHNOLOGY	PROTOCOL
Routing and Switching	BGP-4, BGP+, OSPFv2/v3, ISISv4/v6, EIGRP, EIGRPv6, RIP, RIPv6, BFD, IGMP/MLD, PIM-SM/SSM, STP/RSTP/MSTP, PVST+/RPVST+, Link Aggregation (LACP), LISP, LLDP, BGP FlowSpec
Software Defined Network	OpenFlow, Segment Routing, BGP Link State (BGP-LS), PCEP, VXLAN, EVPN VXLAN, OVSD, GENEVE, BGP FlowSpec, BGP SR TE Policy
MPLS	RSVP-TE P2P/P2MP, LDP/LDPv6/mLDP, LDP L2VPN (PWE/VPLS), BGP VPLS/VPWS, L3VPN/6VPE, 6PE, Inter-AS VPN Options A/B/C, BGP LU (RFC3107), MPLS-TP, MPLS OAM, EVPN/PBB-EVPN, Multicast VPN Rosen Draft, NG Multicast VPN
Broadband and Authentication	PPPoX/L2TPv2, DHCPv4/DHCPv6, Radius attributes for L2TP, ANCP, IPv6 Autoconfiguration (SLAAC), IGMP/MLD, IPTV, AMT, 802.1x, WebAuth, EAPoUDP, Cisco NAC
Industrial Ethernet	Link OAM (IEEE 802.3ah), CFM IEEE 802.1ag, Service OAM ITUT-Y.1731, PBT/PBB-TE, ELMI, Sync-E ESMC, PTP IEEE 1588 with G.8265.1 Telecom Profile, MSRP IEEE 802.1 Qat, gPTP IEEE 802.1as, Layer 2 AVB Transport Protocols IEEE 1722
Data Center Ethernet	DCBX/LLDP, FCoE/FIP, Priority Flow Control IEEE 802.1Qbb (PFC), TRILL, TRILL OAM, Cisco FabricPath, SPBM, VEPA, VNTAG/VIC

TRAFFIC

IxNetwork supports hardware-based traffic generation and measurement that can ensure highest precision and performance. The sophisticated traffic generator is also tightly integrated with the control-plane protocols.

TRAFFIC GENERATOR	SPECIFICATION
Configuration	Advanced Traffic Wizard – steps by steps wizard assisted traffic configuration Quick FlowGroup – granular control of packet sequence and variations
Scale	<ul style="list-style-type: none"> Generate up to 4 million trackable flows Configure up to 16,000 unique Flow Groups – each supporting a unique transmit profile Up to 4,096 hardware streams per-port Learn and bind up to 4 million MPLS labels

TRAFFIC GENERATOR	SPECIFICATION	
Dynamic Controls	<ul style="list-style-type: none"> • Change frame rate and frame size on the fly • Change pre-defined packet header field on the fly • Update MPLS and PPP traffic dynamically, without having to stop and restart traffic 	
Traffic Types	IPv4, IPv6, MPLS multi-labels, Ethernet, VLAN, provider bridges (Q-in-Q), provider backbone bridges (MAC-in-MAC), frame relay, ATM, PPP, HDLC, L2 MPLS VPN (including FR and ATM to Ethernet PWE3 Internetworking), L3 MPLS VPN, VPLS, 6PE, 6VPE, multicast, multicast VPN	
Source/Destination Ports Mapping	One-to-one, many-to-many, fully meshed	
Routes Mapping between Peer Ports	One-to-one, fully meshed	
Flow Grouping	Build flow groups based on packet content (e.g., QoS or VLAN ID)	
Traffic Profile	Frame size	Fixed, increment, random, IMIX, custom IMIX, Quad Gaussian distribution, auto
	Rate	percent line rate, packets/sec, L2 bit rate (bps, Bps, Kbps, MBps)
	Payload pattern	Increment byte/word, decrement byte/word, random, custom
	QoS	TOS, DSCP, IPv6 traffic classes, 802.1p, MPLS EXP
	Dynamic	Traffic supports gratuitous ARP - auto Re-ARP on cable re-connect
Dynamic Fields	Pre-defined packet header field, MPLS, and PPP - update corresponding traffic packets on the fly when control plane information changes	
Packet Error Injection	Bad CRC, No CRC	
Per-Flow Traffic Tracking	Single or multi-field tracking of any field including: QoS (TOS/DSCP), VLAN, source MAC address, destination MAC address, source IP address, destination IP address, MPLS label, MPLS flow descriptor, streams, Src/Dst IP pair, Src/Dst MAC pair, custom packet tracking	
Real-Time Flow Filtering and Flow Detective	Real-time filtering of flows based on tracking settings with user defined criteria. Single out best/worst performing flows based on Rx count, min/max/average latency, timestamp, real-time packet loss using sequence, identify dead flows	

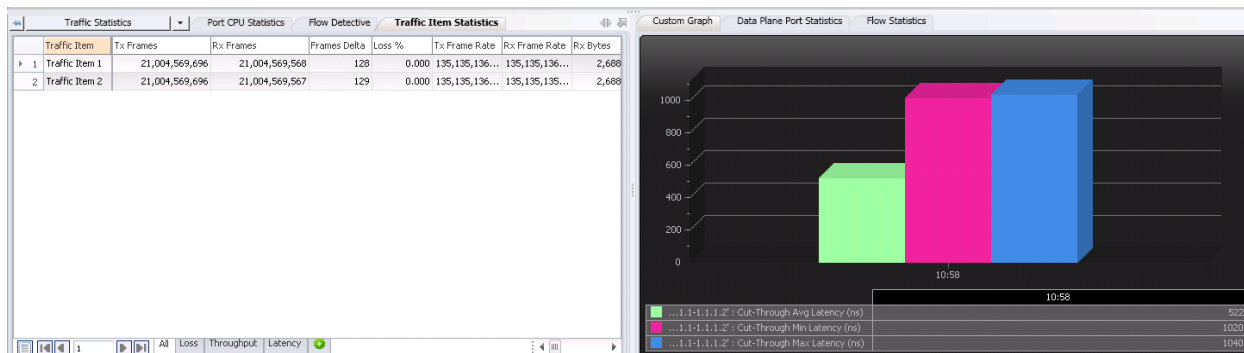
TRAFFIC GENERATOR	SPECIFICATION	
Packet Editor	Edit packet header fields and payload	
	Header field value editing	Increment, decrement, list, user defined, default, link/unlink with other header fields
	Add tracking	Track user defined traffic flows
	Payload editing	Increment byte/word, decrement byte/word, repeat, fixed, user defined
	Custom editing	Add or insert additional layers of protocols

MEASUREMENT	SPECIFICATION	
Loss	Track Tx frames, Rx expected frames, Rx frames, Rx bytes frame delta loss %	
Rate	Tx frame rate, Rx frame rate, Rx rate (bps, Bps, Kbps, Mbps)	
Latency	Store and forward, cut-through, MEF frame delay, forwarding delay	
Delay Variation (Jitter)	Delay variation measurement (jitter) minimum, average, maximum	
Inter-Arrival Time	Inter-arrival minimum, average, maximum	
Sequence	Small error, big error, reverse error, last sequence number, duplicate frames, sequence gaps	
Time Stamps	First and last timestamp per flow	
TrueView™ Convergence	Control plane and data plane integrated time stamping for calculating convergence measurements	
Packet Loss Duration	Estimated time without received packets calculated by frames delta at the expected Rx rate	
Misdirected Packets	Per-port based count of packets not expected on a Rx port	
Late Packets	Per-flow count of packets that arrived late; user-defined threshold for late packets	
Re-Ordered Packets	Per-flow count of packets that were received out of order	
Duplicate Packets	Per-flow count of duplicate packets that were received	
In-Order Packets	Per-flow count of packets that were received in order	

TEST RESULTS—STATISTICS VIEWER

The IxNetwork statistics viewer is a powerful tool for viewing and analyzing real-time results and generating test reports.

- Aggregate statistics are displayed hierarchically, with the ability to drill-down to group-level and flow-level statistics.
- Different modes to view traffic statistics – Instantaneous, Cumulative, or both
- CSV files can be used to capture a single results view or, at the global level, to capture all results in real-time. An integrated CSV viewer is provided to view large-result files.

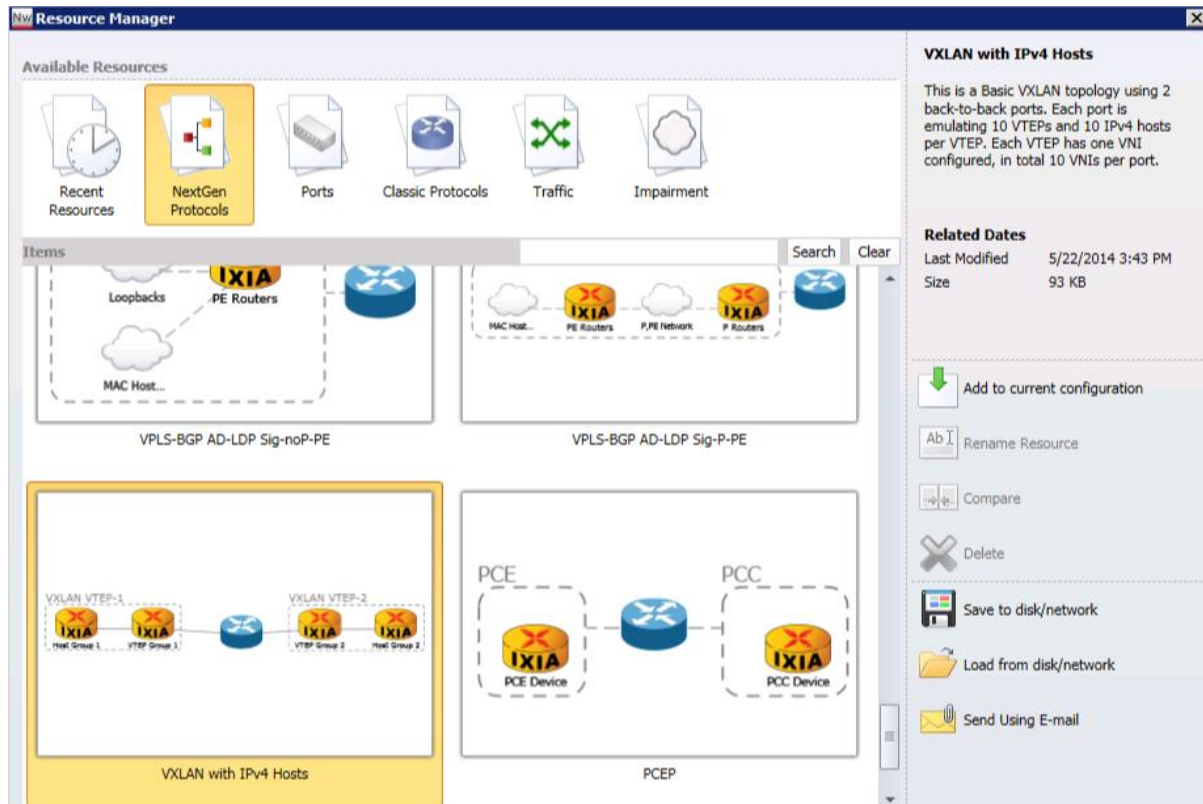


Statistics Viewer

FUNCTION	STATISTICS
Global Protocol	Port-level protocol counters
Port	Port mode, speed, frame and data rate, OAM statistics, misdirected
Tx-Rx Frame Rate	Tx-Rx frame rate graph
Port CPU	Port CPU utilization and statistics
Data Plane Port	Port-based frame counts and rate excluding control-plane traffic
Traffic Item	Statistics provide an aggregate of all the flows in the Traffic Item
User Defined	User-defined view is used for drill-down to user-defined tracking options
Flow Statistics	Flow-level measurements
Flow Detective	Filtering and sorting based results

RESOURCE MANAGER

Often expertise for different protocols lies within different members of a testing team. A common pain-point for our customers was the lack of a collaboration tool to aid them in incrementally building configurations. With the Resource Manager, users can now piece-meal their configurations together. The Resource Manager allows users to save different pieces of their configurations, like protocols and traffic elements, and then build a configuration by re-using saved elements in their current configuration.



Resource Manager

It also allows users to clearly see changes made to their resources/configurations by using a “diff” functionality within the application. Using the Resource Manager is a powerful way to collaborate and quickly build expertise with a team.

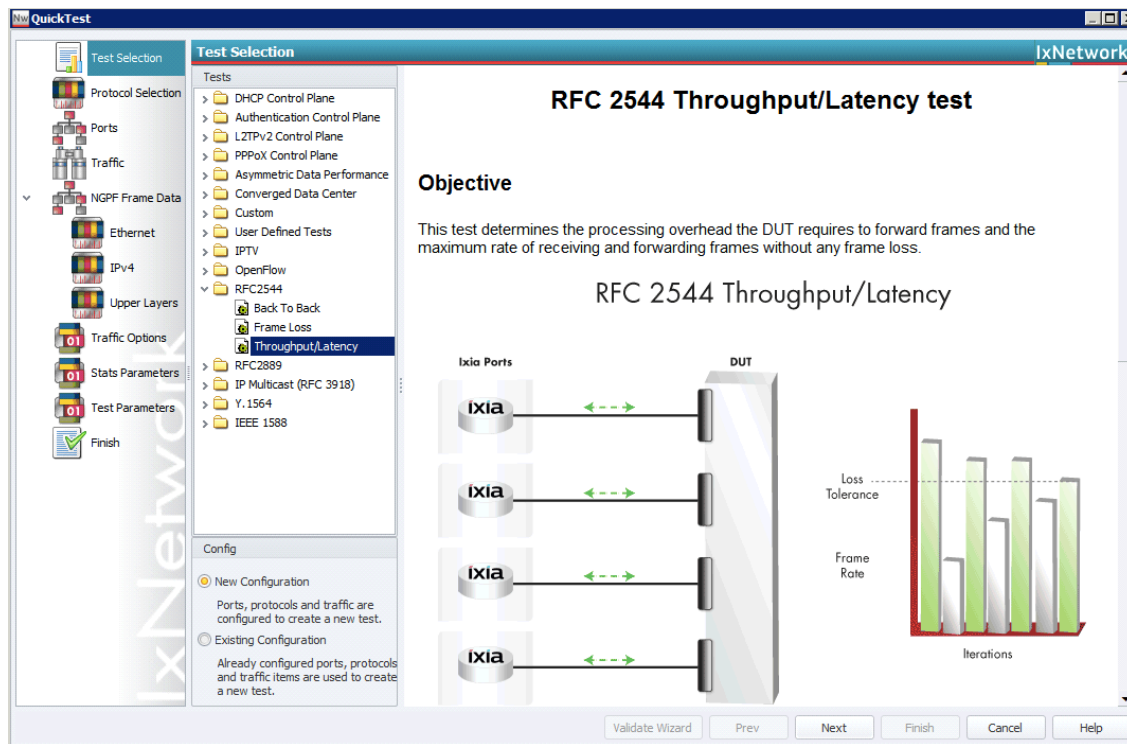
REPORTS

Building a test-results report requires test data. IxReporter introduces a new database, referred to in the application as an “object model.” The object model is populated by a testing application (like IxNetwork) with the test configuration parameters and the test results. All of these “objects” can be included in a report, usually in a table or chart. With this powerful concept, tables and charts can be created which combine statistics and configuration information as well as have multiple protocols.

AUTOMATION

IxNetwork provides powerful GUI-based automation with Test Composer and QuickTest. It also has a robust feature set for GUI-to-script and API-based automation. IxNetwork's automation is simplicity at its best. Test scenarios are set up using IxNetwork's step-by-step GUI, and then a single button-press generates a TCL test script. Scripts may be modified and combined in any fashion. When the script is run, the IxNetwork GUI watches the execution – providing real-time statistics and state information.

TYPES	TEST REQUIREMENT	DETAIL
QuickTest	Scalability	<ul style="list-style-type: none">Standards-based IETF RFC test methodologies, as well as a custom mode for user-defined performance testsEasy-to-use, configurable, pre-packaged testsGenerate detailed reports of results
Macro Recorder	Functionality	<ul style="list-style-type: none">“Click-thru automation” means no more scriptingRapid capture of manual test casesCapture steps that cause a failure for reproducibility
Test Composer and Tweakables	Regression	<ul style="list-style-type: none">GUI-based solution to automate test actionsDetailed control over test execution without Tcl expertiseComplete access to the Tcl API with easy UIEdit “Macro Recorded” steps for customization of GUI captured events
ScriptGen	Regression	<ul style="list-style-type: none">Provides an easy, one-click GUI-to-script generation
Low-Level and High-Level APIs	Functionality and regression	<ul style="list-style-type: none">For Tcl scripting expertsOne-click GUI to Tcl script conversion available (Scriptgen)Complete access to and control over test configurationTcl, Perl, Python, Ruby, REST API



QuickTest end-to-end wizards

QUICKTEST	TESTS
RFC 2544 Tests	Throughput and latency, frame loss, back-to-back; available in QuickTest Web Edition
RFC 2889 Tests	Address Cache, Address Rate, Broadcast Rate, Congestion Control, Frame Error Filtering, Fully Meshed, Many to One, One to Many, Partially Meshed; available in QuickTest Web Edition
RFC 7747 Tests	BGP convergence over ECMP benchmark test; available in QuickTest Web Edition
RFC 3918 Tests	Aggregated Multicast Throughput, Burdened Group Join Delay, Burdened Multicast Latency, Forwarding Latency, Group Join/Leave delay, Mixed Class throughput, Multicast Group Capacity, Multicast Group Pattern Verification, Scaled Group Forwarding
IEEE 1588v2 (PTP)	Best Master Selection, Transparent Clock Correction Factor Error, Slave Scalability
ITU-T Y.1564 Service Activation	Service Configuration, Service Performance
Asymmetric Data Performance	Throughput/Latency, Frame Loss

QUICKTEST	TESTS
IPTV	Channel Zapping
Converged Data Center	FCoE Max No Drop Throughput, FCoE Max No Pause Throughput, Cloud Performance
Broadband Control Plane Tests	Session setup rate and session capacity tests for PPP/L2TPv2, 802.1x, and NAC
OpenFlow	Failover Performance, L2 Address Learning, L3 Address Learning, Switch Flow Table Capacity
Custom Tests	Continuous run, fixed duration run, incremental, throughput (binary search)
User-Defined Tests	Tests defined in Test Composer

QUICKTEST – WEB EDITION

With the release of Native IxOS chassis (XGS2/12 HSL with Linux OS), RFC 2544, RFC 2889, and RFC 7747 QuickTests can be initiated with a web browser. The new HTML5 web-based GUI eliminates the need to install IxNetwork client on Windows. The result is an all-Linux test platform that consumes a smaller memory footprint, starts/loads faster, and executes quicker.



RFC 2544 QuickTest Web Edition

BUILT-IN DATA CAPTURE AND ANALYSIS

Internet protocols are complex – multi-protocol emulations even more so. IxNetwork includes a built-in tool that captures control-plane traffic along with line-rate data-plane traffic, merging both into a single capture file. The optional Analyzer module is a sophisticated network analyzer, with the ability to display protocol ladder diagrams. IxNetwork allows you to trigger and filter control and data plane packet captures based on user-defined packet field.

IMPAIRMENT

IxNetwork supports a list of ImpairNet® modules that emulate real-life network impairments. Testing a variety of applications that run over WAN networks, ImpairNet offers unparalleled scaling, ease-of-use, and measurement accuracy. Refer to Ixia web site for ImpairNet data sheet.

PLATFORM OPTIONS

VISIT IXIACOM.COM FOR MORE INFORMATION ON IXNETWORK PLATFORM OPTIONS	
Virtual Platform	<ul style="list-style-type: none">• IxNetwork Virtual Edition (VE)
Chassis	<ul style="list-style-type: none">• XGS12-HSL/HS/SD Chassis• XGS2-HSL/HS/SD Chassis
Load Modules	<ul style="list-style-type: none">• NOVUS High Density QSFP28 100/50/25GE• NOVUS 10G/1G/100M• NOVUS 10G/5G/2.5G/1G/100M• NOVUS ONE Appliance• Xcellon-Multis QSFP28 100/50/25GE• Xcellon-Multis CFP4 100GE• Xcellon-Multis CXP 100/40/10GE• Xcellon-Multis QSFP 40/10GE• Xcellon-Lava CFP 100/40GE• Xcellon-Flex QSFP/SFP+ 40/10GE• NGY SFP+/BASE-T 10GE• XMVDC Dual PHY 1GE

TECHNOLOGY SOLUTIONS

VISIT IXIACOM.COM FOR MORE INFORMATION ON IXNETWORK TECHNOLOGY SOLUTIONS

- IxNetwork Overview—L2/3 Network Infrastructure Performance Testing
- IxNetwork Software Defined Networking (SDN) Test Solution
- IxNetwork Industrial Ethernet Test Solution
- IxNetwork Routing and Switching Test Solution
- IxNetwork Broadband and Authentication Test Solution
- IxNetwork Data Center Ethernet Test Solution
- IxNetwork MPLS Test Solution

PRODUCT ORDERING INFORMATION

930-2056

IxNetwork, Base Software PLUS

INCLUDES: Base Software, Layer 2-3 Performance Test Application, Supports Traffic Generation and Analysis, RFC 2544 and Custom Integrated Tests over Advertised Topologies, IxNetwork Floating Client Framework, Floating DUT CLI Integration, Floating DUT SNMP Integration, Floating DUT SYSLOG Integration

930-2076

IxNetwork, Base Software PREMIUM

INCLUDES: Base Software, Layer 2-3 Performance Test Application, Supports Traffic Generation and Analysis, RFC 2544 and Custom Integrated Tests over Advertised Topologies, IxNetwork Floating Client Framework, Floating IxReporter Designer, Floating Macro Recorder, Floating DUT CLI Integration, Floating DUT SNMP Integration, Floating DUT SYSLOG

ALL INCLUSIVE SOFTWARE BUNDLES

930-3500

IxNetwork Volume SW Package Tier 1, Supports IxNetwork IPv4/IPv6 Unicast/Multicast Routing Protocols, Switching (Layer 2 Protocols), and MPLS VPN protocols

930-3501

IxNetwork Volume SW Package Tier 2. Supports IxNetwork IPv4/IPv6 Routing Protocols, Switching (Layer 2 Protocols), MPLS VPN Protocols, and Carrier Ethernet Protocols

930-3502

IxNetwork Volume Software Package Tier 3. Supports IxNetwork IPv4/IPv6 Routing Protocols, Switching (Layer 2 Protocols), MPLS Protocols, Multicast VPN Protocols, Carrier Ethernet Protocols, Data Center Ethernet Protocols, and Broadband/Authentication protocols

930-9501

IxNetwork Tier-1 FLOATING Subscription license for use with Ixia hardware. Includes all IxNetwork protocols supported in IxNetwork for a duration of 1-Year. Supports low scale control plane

930-9502

IxNetwork Tier-2 FLOATING Subscription license for use with Ixia hardware. Includes all IxNetwork protocols supported, all IxNetwork QuickTests, All Test Automation (Macro Recorder, Test Composer licenses) features and IxReporter for a duration of 1-Year. Supports unlimited scale control plane (not to exceed LM capacity)

930-9503

IxNetwork Tier-3 FLOATING Subscription license for use with Ixia hardware. Includes all IxNetwork protocols supported, all IxNetwork QuickTests, All Test Automation (Macro Recorder, Test Composer licenses) features, IxReporter, ImpairNet and AppLibrary for a duration of 1-Year. Supports unlimited scale control plane (not to exceed LM capacity)

QUICK TEST

930-2022

IxNetwork, Optional Software, RFC2544 and Custom Integrated Tests over Advertised Topologies; **REQUIRES** pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2027

IxNetwork, Optional Software, Control Plane Tests for PPP/L2TPv2, 802.1x, NAC; **REQUIRES** pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2401

IxNetwork, Optional Software, RFC 2889 QuickTest; **REQUIRES** pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2403

IxNetwork, Optional Software, IP Multicast RFC 3918 QuickTest; **REQUIRES 930-2067 IGMP/MLD Emulation (or 930-2004 IxNetwork Multicast Emulation)**; **REQUIRES** pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2405

IxNetwork, Optional Software; FCoE/FC Performance QuickTest; This QuickTest performs binary and step search to find the max no-drop and no-PAUSE throughput performance of a DCB switch, an FCoE switch, or an FC switch; **REQUIRES** 930-2039 IxNetwork FCoE-Client Emulation; **REQUIRES** 930-2043 IxNetwork DCBX emulation if DCBX is required; **REQUIRES** 930-2049 IxNetwork FCF emulation if FCF emulation is required; **REQUIRES** 930-2074 IxNetwork FC N_Port emulation if Fibre Channel is required; **REQUIRES** pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2407

IxNetwork, Optional Software, IPTV QuickTests; **REQUIRES** 930-2067 IGMP/MLD Emulation (or 930-2004 IxNetwork Multicast Emulation); **REQUIRES** pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2408

IxNetwork, Optional Software, Y.1564 QuickTest; REQUIRES pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2409

IxNetwork, Optional Software, Asymmetric Data Performance QuickTest; REQUIRES pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2410

IxNetwork, Optional Software, 1588v2 (PTP) QuickTest; REQUIRES pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2411

IxNetwork, IxCloudPerf QuickTest; Measures the forwarding performance of a data center switch using simulated data center North-South and East-West traffic profiles; Provides a binary-search test methodology, a timeline test methodology, and a dynamic test methodology; REQUIRES pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2412

IxNetwork, OpenFlow QuickTest; OpenFlow Benchmarking test; Flow Table Capacity, Flow Learning Rate, Flow Failover Test; REQUIRES IxNetwork OpenFlow Emulation License (930-2077) AND pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2424

IxNetwork, Optional Software, RFC 7747 BGP Convergence QuickTest Web Edition; Requires BGP Emulation (930-2005, 930-2007); REQUIRES pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

APPLIBRARY

930-3461

IxNetwork AppLibrary Slot Bundle, Layer 4-7 Performance Test Application; Enables support for AppLibrary on a single supported load module. It includes the AppLibrary feature and subscription service to access new application flows for one-year period. Requires previous purchase of 930-2056 (IxNetwork Base) or higher bundle

930-3463

IxNetwork AppLibrary Chassis Bundle, Layer 4-7 Performance Test Application. Enables support for AppLibrary on up to 12 supported load modules in a single XM/XG chassis. INCLUDES: The AppLibrary feature and subscription service to access new application flows for one year. Requires: Previous purchase of 930-2056 (IxNetwork Base) or higher bundle

IMPAIRMENT

930-2600

IxNetwork, Optional Software, Network Impairment Simulation Software for ImpairNet, REQUIRES pre-existing 930-1999 IxNetwork Base license OR new purchase of either IxNetwork Base PLUS (930-2056) or IxNetwork Base PREMIUM (930-2076)

930-2601

IxNetwork, Optional Software, Extended delay up to 600ms for EIM10G4S ImpairNet, REQUIRES 930-2600 Network Impairment Software

930-2602

IxNetwork, Optional Software, Packet Modification for ImpairNet, REQUIRES 930-2600 Network Impairment Software

930-2603

IxNetwork, Optional Software, Accumulate and Burst for ImpairNet, REQUIRES 930-2600 Network Impairment Software

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