

# HAWKEYE—EDGE VISIBILITY AND PERFORMANCE MONITORING

DATA SHEET

## DON'T GET BLINDED BY THE EDGE

It's a brave new world for your network. SD-WAN, 5G, and the internet of things are changing how your network looks, how it behaves, and how fast it reacts. Smart devices are getting smarter, and edge computing is helping reduce latency and improve performance.

### **But how do you prevent performance problems and protect an expanding attack surface?**

You need to future-proof your network, and that means capturing dynamic network intelligence across the entirety of your network's edge. By arming your security and performance monitoring tools with actionable insights, you can protect your assets, applications, credibility, and bottom line at the same time.

## IXIA'S EDGE-OPTIMIZED ARCHITECTURE

When it comes to edge computing, reducing costs, strengthening security, and maintaining performance all depend on capturing actionable intelligence from every corner of your network. That's why we built an edge-optimized network architecture that delivers packet-level visibility, active monitoring, and application intelligence to ensure your tools never miss a thing — all managed through an intuitive, single-pane-of-glass that keeps everything running smoothly with no wasted effort.

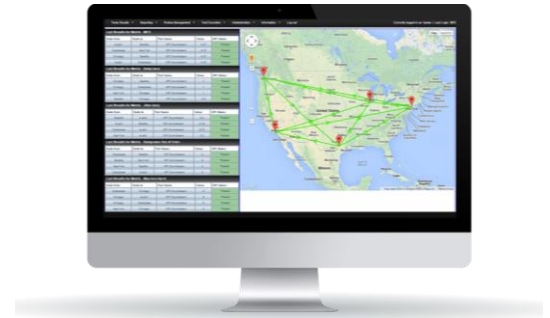
## HIGHLIGHTS

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- Get superior visibility into your edge sites with Hawkeye's advanced network and application testing technology
- Monitor on campus, LAN and Wi-Fi performance
- Save IT staff time by leveraging industry-leading synthetic monitoring solutions
- Understand the performance and utilization of last-mile connectivity and branch offices with cost-effective remote monitoring endpoints
- Process packets and generate advanced flow visibility at the edge
- Green-light your service with pre-launch assessments by emulating real application traffic up to line rate for any network scenario over wired and wireless devices to see how it performs
- Troubleshoot faster by firing off quick validation tests with clear demarcation points to almost instantly find network and application issues
- Proactively detect problems with continuous monitoring of QoE and QoS, so you always know that your network is meeting SLA and quality standards

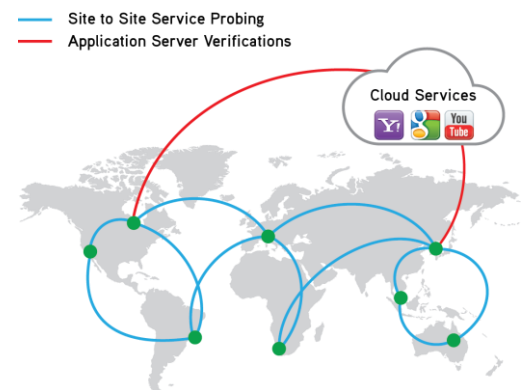
## KEY FEATURES:

- Web-based platform for multi-user access, test scheduling, data storage, and real-time analysis
- Deploy endpoints with turnkey hardware or software endpoints
- Verify your virtual infrastructure with software and VM endpoints
- Generate synthetic monitoring traffic on up to 10G links
- Verify, monitor, and diagnose your user experience on wireline and wireless network
- Take control of your last mile thanks to innovative IxProbe solution
- Verify fixes put in place in your network in real-time with pass/fail metrics
- Proactively detect network or application faults quicker with continuous interval testing throughout the days/weeks/months
- Leverage machine learning base analytics to be alerted on network problems



## DEPLOY HAWKEYE SOLUTION

- Deploy Hawkeye on premise web server in central location (NOC, data center, etc.)
- Hawkeye server can be deployed as VM into VmWare, KVM, or public cloud (AWS)
- Physical appliance for deploying Hawkeye server also available (Vision Management Appliance)
- Strategically-deploy software and hardware endpoints to cost-effectively reach any network location:
  - Customer premises
  - Mobile devices – Wi-Fi or Cellular
  - Remote sites and head offices
  - Network aggregation points (PEs)
  - Core network, MPLS routers
  - Data centers
  - Virtual machines and servers
  - In cloud locations (AWS, Azure...)









**Hawkeye Deployment**

## PLAN AND DESIGN YOUR MONITORING CAPABILITIES

- Define locations network performance requirements toward data-centers, private or public cloud, software-as-a-service
- Define synthetic monitoring scenarios (IP transport performance, Speedtest, Web server performance, Voice/Video etc.)

- Build large topology test (full mesh) with one click

|                               | HARDWARE  |   |   | VIRTUAL  |   | SOFTWARE  |
|-------------------------------|---|---|---|--|---|---|
|                               | Vision E15  | IxProbe   | XRPI  | VM   | Docker  | Software  |
|                               |  |  |  |  |  |  |
| CORE CAPABILITIES             |   |   |   |  |   |   |
| Network Monitoring            | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Application & Web Monitoring  | ✓   | ✓   | ✓   | ✓  | ✓   |   |
| Cloud Monitoring              | ✓   | ✓   | ✓   | ✓  | ✓   |   |
| Inline Monitoring             |   | ✓   |   |  |   |   |
| Fail to Wire                  |   | ✓   |   |  |   |   |
| Wifi Monitoring               |   |   | ✓   |  |   | ✓   |
| Packet aggregation, filtering | ✓   |   |   |  |   |   |
| NetFlow                       | ✓   |   |   |  |   |   |
| Packet Capture                | ✓   |   |   |  |   |   |
| SPECIFICATION DETAILS         |   |   |   |  |   |   |
|                               | 4*10G (SFP+), 6*1G BASE-T, 2*1G BASE-T for management                             | 2*1G  | 1*FE, 1 Wi-Fi 2,4Ghz, 5Ghz, AC  | OVA, QCOW, AWS AMI, Ethernet and virtual interfaces                                | Ethernet, Virtual   |   |

## Hawkeye endpoint types

## SELECT TEST TYPES AMONG PRE-CALIBRATED TESTS IN HAWKEYE LIBRARY

Hawkeye supports a variety of service level agreement (SLA) and quality of experience (QoE) objectives, including:

- Speed test from site to site with advanced configuration on traffic profiling
- Advanced Bandwidth availability or verification with bit blasting or TCP-based testing
- Class of service (COS) implementation validation with oversubscription scenarios
- IP network SLA verification (one-way delay, jitter, loss)
- Unified communications tests (Skype for Business, Teams) – Microsoft Certified
- Real-time streaming verification
  - Mean opinion score (MOS) for voice – G711, G729, AMR ...
  - Media delivery index (MDI) for video streaming
- Echo tests (ICMP, TCP, UDP) and path discovery to any interface on the web
- User experience tests (downloading web pages, etc.)
- DNS response time
- Netflix, YouTube, and any Dash/Adaptive streaming test
- Multicast video
- Remote destination port opening verification
- WiFi network advanced metrics

### CREATE TARGET THRESHOLDS FOR DIFFERENT TESTS

- Adjust applications, test variables, and thresholds based on trial data to match expectations of the network and its performance
- Auto-learn baseline thresholds based on machine learning algorithms
- Thresholds are the baseline to decide if tests are passing or failing

### LEVERAGE PATH DISCOVERY FOR TROUBLESHOOTING

- Advanced topology discovery from Ixia endpoints to any remote location
- Hop-by-hop discovery
- Path discovered based on specific application settings
- Powerful and intuitive result display
- Quick troubleshooting tools – identify nodes with loss or long delay
- Geolocalization on each identified public node



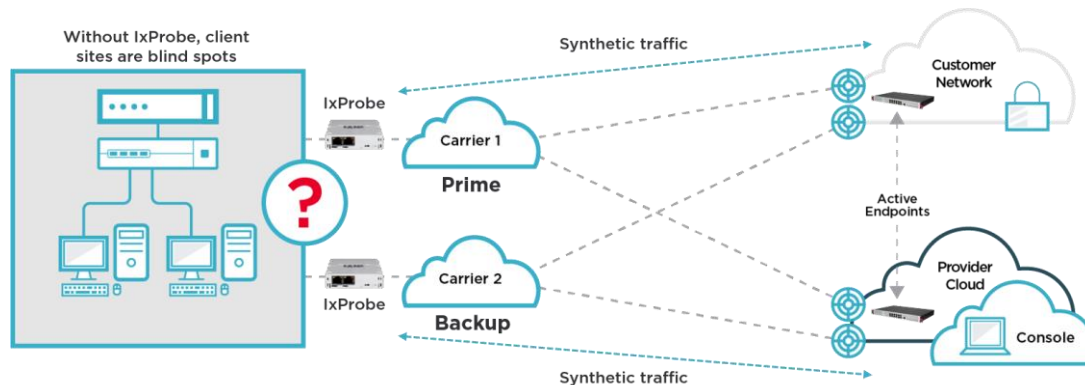
Path discovery

### KEEP A FINGER ON YOUR NETWORK'S PULSE

- Deploy your IxProbe hardware endpoints in line in your remote sites to keep track of inline metrics while generating synthetic monitoring traffic
  - Heartbeats
  - Real-time traffic and link status reporting



IxProbe



IxProbe deployment

## MANAGE PACKETS ON REMOTE SITES

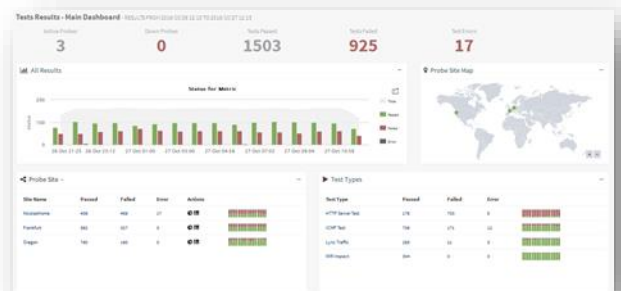
- Deploy Vision Edge 1S probe, centrally managed with SPAN ports or copper TAPs to see packets and
  - Generate metadata information on the flows, and send it via Netflow or IxFlow (IPFIX) to flow collectors
  - Aggregate, deduplicate, filter, and backhaul to central tools for APM/NPM or security forensic analysis
  - Perform local packet capture snapshots



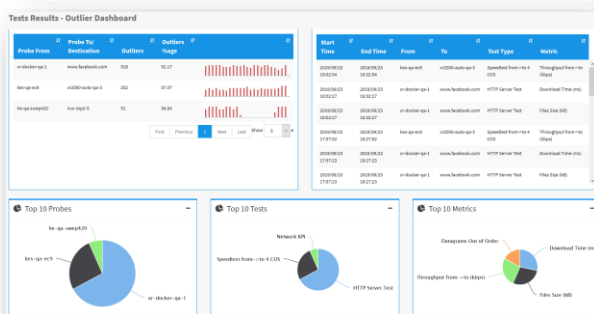
Vision Edge 1S

## ANALYZE RESULTS

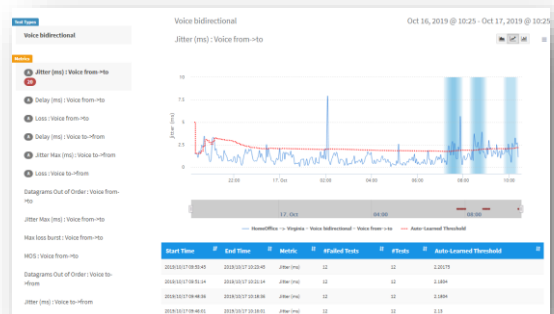
- Use different result levels and granularity to get quick and efficient results and understanding
- Ensure every team member can get to required data with simple pass/fail metrics and detailed test reports
- See results in real time in geographic dashboards
- Quickly spot network problems with outlier dashboard
- Run tests and look at single instance results or group of tests results
- Run trend reports on historical data and analyze network behaviors
- Export and send reports via email to share results between teams
- Activate alarms on critical paths
- Get notified by email, SNMP traps, customized notifications
- Reporting engine creates reports and dashboards based on the results stored in the database
- Schedule daily automatic reports to follow critical networks
- Receive automatic emails with comprehensive reports



Main dashboard



Outliers dashboard



Time Series analytics

XRPI

- Field-ready: robust and fan-less, lightweight and highly portable
- Proven platform – powered by Raspberry Pi
- Wi-Fi interface, dual band
- Automatic and remote management out of the box with Hawkeye
- Wi-Fi scanning and connectivity tests



| FEATURE                  | DESCRIPTION   |
|--------------------------|---|
| <b>CPU Type</b>          | Quad core 900Mhz ARM processor  |
| <b>RAM</b>               | 1GB   |
| <b>Storage</b>           | 8GB micro SD with operating system and data                             |
| <b>LAN</b>               | One (1) 10/100Mbps Fast Ethernet port                                   |
| <b>Wi-Fi</b>             | One (1) Wi-Fi dongle with dual band 2.4/5Ghz, 802.11 a/b/g/n            |
| <b>Power</b>             | On-board DC +5V 2A Micro USB<br>~650 mA, (3.0 W)                        |
| <b>International Use</b> | Power unit ships with various country-specific adaptors                 |
| <b>Console Access</b>    | HDMI port for video, USB for keyboard                                   |
| <b>Remote Access</b>     | Enabled with secure telnet (ssh)  |
| <b>Size and Weight</b>   | 92mm x 29mm x 67mm<br>3.63" x 1.13" x 2.63"<br>100g                     |
| PERFORMANCE              |   |
| <b>TCP Throughput</b>    | Up to available line rate with built-in 10/100 Ethernet or Wi-Fi dongle |
| <b>UDP Throughput</b>    | Up to available line rate with built-in 10/100 Ethernet or Wi-Fi dongle |

IXPROBE

- Verify SLAs with synthetic QoS testing.
- Monitor branch site uptime with heartbeats and SNMP polling.
- Deploy at scale with fast, simple installation.
- Avoid adding extra ports and management interfaces with purely inline design.
- Prevent disruptions with inbuilt fail-to-wire.
- Improve operational efficiency with single-plane-of-glass management.
- Field ready: robust and fan-less, lightweight



| FEATURE                      | DESCRIPTION   |
|------------------------------|---|
| <b>CPU Type</b>              | 1 GHz (dual core processor)   |
| <b>DRAM</b>                  | 512MB   |
| <b>I/O Interfaces</b>        | Network ports: (2) RJ45, 8-pin connectors<br>Management port (1): RJ45, 8-pin connectors<br>Console port (1): 1 micro USB connector<br>ACCS port (1): 1 USB3.0 type A connector |
| <b>Power</b>                 | AC power input: 100-240VAC, 50-60 Hz, 0.5A Max • DC output: USB-C 5V @ 3A • Power dissipation less than 34 BTU/Hr 10W   |
| <b>Dimension</b>             | 0.9" high x 9.4" deep x 4" wide   |
| <b>Weight</b>                | 0.73 lbs (0.33 kg)  |
| <b>Operation Temperature</b> | Operating: 0°C to 40°C<br>Non-operating: -10°C to 70°C  |
| <b>Operation Humidity</b>    | Operating: 10% min, 95% max, noncondensing<br>Non-operating: 10% min, 95% max, noncondensing  |
| PERFORMANCE                  |   |
| <b>TCP Throughput</b>        | Up to line rate (1G)  |
| <b>UDP Throughput</b>        | Up to 600M  |

VISION EDGE 1S

- Ixia’s most affordable network packet broker, Vision E1S is designed for easy deployment in distributed edge sites.
- Application intelligence – detect flow and applications, generate enriched NetFlow (IxFlow) to collectors, and perform remote packet capture
- Up to 10G traffic generation
- Remote controlled, easy-to-use web-interface – allows efficient provisioning and remote management
- Comprehensive wizards make deployment extremely easy



| VISION E1S  |   |
|---|---|
| <p><b>Power</b></p> <ul style="list-style-type: none"> <li>• Redundant (2) AC power supplies</li> <li>• Input AC: 110 to 240 @ 50/60 Hz</li> <li>• Power: 300W</li> <li>• System Cooling: 2 x PWM fans, supports smart fan</li> </ul>   | <p><b>Physical Size, Weight</b></p> <ul style="list-style-type: none"> <li>• WxLxH: 442 x 298.25 x 43.6 mm</li> <li>• Weight: 3.08 kg</li> <li>• 1U rack mount - support FIPS 140-2 Level 2 in chassis</li> <li>• Operating Temperature: 0 to 40 degrees Celsius</li> <li>• Operating Humidity: 20% to 90%</li> <li>• Storage Temperature: -20 to 70 degrees Celsius</li> <li>• Storage Humidity: 5% to 90%</li> <li>• Country of Origin: Taiwan</li> </ul> |
| <p><b>Interfaces</b></p> <ul style="list-style-type: none"> <li>• (4) 10G SFP+ (Active monitoring or packet monitoring)</li> <li>• (6) 1G BASE-T copper (packet monitoring)</li> <li>• (2) 1G BASE-T copper (Management + Active Monitoring)</li> <li>• (1) USB 3.0 port</li> <li>• (1) RJ45 serial console port</li> </ul> |   |
| PERFORMANCE   |   |
| <b>TCP Throughput</b>   | Up to 10G   |
| <b>UDP Throughput</b>   | Up to 6G for standard IP, up to 10G with jumbo frames   |



## ORDERING INFORMATION

### HARDWARE

#### **940-0008**

XR2000 Active Hardware Endpoint; integrated hardware endpoint for IxChariot OR Hawkeye; Licensed for 2 active test ports; AC unit. requires adjunct or previous purchase of IxChariot Floating Bundle (920-0055 through 920-0064) OR Hawkeye Bundle (920-2401 through 920-2406)

#### **IXPR-CU3**

IXIA IxProbe Copper - 10/100/1000M. 1G Intelligent in-line probe with auto speed negotiation, CLI, Web GUI or SNMP management, and Hawkeye endpoint software. (2) front facing in-line RJ45 network ports. Managed in band via network link IP adoption or via rear management port. Includes: (1) RJ45 Cat5 cable, (1) wall mount clip, and (1) power supply and 2m power cord. Wall, desktop, or rack mountable. Pre-loaded Hawkeye Endpoint software requires license and activation via Hawkeye server.

#### **SYSE1S-AC**

IXIA Vision E1S System AC Chassis with fixed (4) 10G SFP+ ports and (6) 1G RJ-45 ports; Contains two redundant AC power supplies and integrated redundant fan units. Includes (1) license for NetStack, PacketStack, AppStack and (3) user seat license for central management with Hawkeye. Seats are not additive (max 3 users per Hawkeye server). Synthetic monitoring is not included. Optional licenses available for additional user seat licenses and synthetic monitoring.

#### **991-0135**

IXIA, Vision Management Appliance, AC power; Supports running IFC-CM and Hawkeye; Adjunct or separate node license for either IFC-CM (954-4005 to 954-4009) and/or Hawkeye (920-2401 to 920-2406) is required in order to operate the management software; redundant fans and power supplies and 2-post rack install included. RSA Regulatory Model # E39S.

### SOFTWARE LICENSES

#### **920-2401**

Hawkeye, 10 Endpoint Solution Bundle Includes: Hawkeye central management system (920-2410), 10 endpoint (sw or hw) registration & use (920-2421), 30 pairs node to node test license (920-2429), and 1 user seat license (920-2411)

#### **920-2402**

Hawkeye, 25 Endpoint Solution Bundle Includes: Hawkeye central management system (920-2410), 25 endpoint (sw or hw) registration & use (920-2422), 75 pairs node to node tests license (920-2430), 5 real services tests (requires XR2000 or XRPi) 920-2451, and 2 concurrent user seat license (920-2412)

### **920-2403**

Hawkeye, 50 Endpoint Solution Bundle Includes: Hawkeye central management system (920-2410), 50 endpoint (sw or hw) registration and use (2x 920-2422) 150 pairs node to node test license (2x 920-2430) 10 real services tests (requires XR2000 or XRPi) (2x 920-2451), and 2 concurrent user license (920-2412)

### **920-2404**

Hawkeye, 100 Endpoint Solution Bundle Includes: Hawkeye central management system (920-2410), 100 endpoint (sw or hw) registration & use (920-2423), 300 pairs node to node tests license (920-2431), 25 real services tests (requires XR2000 or XRPi) (920-2453) and 5 concurrent user license (920-2413)

### **920-2405**

Hawkeye, 200 Endpoint Solution Bundle Includes: Hawkeye central management system (2x 920-2410), 200 endpoint (sw or hw) registration & use (920-2424), 1200 pairs node to node tests license (2x 920-2431), 50 real services tests (requires XR2000 or XRPi) (920-2454) and 5 Concurrent user license (920-2413)

Learn more at: [www.ixiacom.com](http://www.ixiacom.com)

For more information on Ixia products, applications, or services, please contact your local Ixia or Keysight Technologies office.

The complete list is available at: [www.ixiacom.com/contact/info](http://www.ixiacom.com/contact/info)