Sightline Mobile and MobileStream

Subscriber and Infrastructure Threat Detection at Scale for 4G/5G Networks

Mobile networks are inherently more complex to monitor than their wireline equivalents due to the use of GTP tunneling for all user traffic. To fully understand user-plane activity and identify threats, the traffic carried within these tunnels must be monitored and correlated with control plane information – enabling proper attribution and traceback.

Dynamic mapping of mobile IP addresses to identities (IMSI, MSISDN, device types, infrastructure endpoints, etc.) is essential to extracting actionable insights in real-time about both underlying traffic patterns and potential threats.

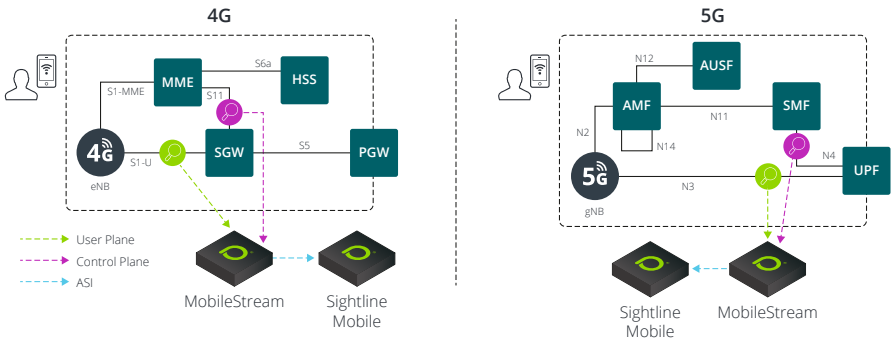
NETSCOUT® is the market leading provider of network equipment vendor agnostic visibility into 3G, 4G, 5G Non-Standalone and Standalone networks with its unique Adaptive Service Intelligence® (ASI) technology and InfiniStream® instrumentation, along with scalable threat detection and network visibility for ISPs with its Arbor Sightline solution.

MobileStream extends NETSCOUT's ASI technology to passively monitor GTP-c and GTP-u traffic and stream this enriched telemetry to Arbor Sightline for unprecedented subscriber-level and infrastructure-aware traffic visibility and threat detection.

- Provides connectivity options for 1G, 10G, 40G or 100G
- Cost-effective COTS-based software appliance
- Supports interoperability with Arbor Sightline network visibility software
- Award-winning NETSCOUT MasterCare Support coverage for software and hardware

Mobile networks have become the dominant way of accessing the Internet owing to their increased speeds, throughput, convenience, and reliability. Many ISPs are now offering consumer premise equipment for home and small office environments that leverage high-speed 4G/5G connectivity. Traffic levels have escalated quickly as the distinction in the way consumers use wired and wireless connectivity blurs. Unfortunately, along with the growth in traffic and numbers of connected devices, network operators have experienced an increase in threat activity.

- Increased use of mobile to access gaming services has brought with it a huge increase in DDoS activity. Wasting expensive network capacity on low-level DDoS activity is less than ideal for any operator, but the bigger service performance and availability risk comes from the potential to congest key elements of mobile network infrastructure either through traffic volume or state exhaustion.
- The proliferation of vulnerable consumer IoT and other compromised Internet-facing infrastructure connected over mobile networks has driven a significant increase in botnet populations on mobile networks. This brings with it increased risk of outbound / cross bound DDoS activity, as well as other resource consuming behaviors such as scanning, etc.



The threats within mobile networks now echo those seen in wireline environments over the past decade. Wireline ISPs all over the world, of every shape and size, utilize Arbor Sightline for traffic monitoring and reporting, threat detection, traceback and mitigation. NETSCOUT has developed Sightline Mobile to extend Sightline visibility and threat protection functions into the mobile network domain using telemetry from MobileStream.

NETSCOUT has combined the essential building blocks (Smart Data for visibility; Sightline for threat detection) to deliver a highly scalable solution to protect the performance and availability of mobile data services.

Key Benefits

Detect Outbound Traffic Anomalies from Subscribers – Detect DDoS attacks and other potentially service-impacting traffic anomalies generated by mobile devices. Instantly visualize detailed information on the characteristics of any anomalies and understand the impact the traffic has on the network and services, as well as the identities of the mobile subscribers involved.

Identify Infrastructure Congestion Threats – Identify user-plane traffic anomalies passing through mobile infrastructure endpoints. Build baselines of normal traffic levels to immediately identify shifts that may cause bandwidth or state congestion within the network. Visualize detailed information on the nature of any anomaly and the affected.

Detect Inbound / Cross-Bound Traffic Anomalies to Subscribers – Detect DDoS attacks and other traffic anomalies destined for or between mobile connected devices. Visualize detailed information on any traffic anomaly, including subscriber identity, cell-id etc., and understand the impact it is having on the environment.

Identify Compromised Subscribers – Quickly identify compromised mobile devices by correlating traffic information with Indicators of Compromise (IoCs) from NETSCOUT's ATLAS® global threat intelligence. Understand botnet populations and other DDoS-related threats within the network, and the risk they pose.

Extend User-Plane Traffic Visibility – Develop detailed views into real-time and historical user-plane traffic trends. Identify traffic mapping to the underlying routing topologies (with BGP) for traffic engineering, and capacity planning use cases.

Perform Top Talker Analysis – Easily identify top sources of traffic within the endpoint population. Identify top protocols and services and usage outliers to help tailor service offerings and identify Acceptable Use Policy violations.

Deployment

For cost-effective, strategic deployment throughout the network, certified COTS-based MobileStream appliances balance processing power, packet capture performance, and data storage appropriate for the variety of use cases Security Operations Centers (SOCs) face. Additionally, NETSCOUT provides our award-winning MasterCare annual support coverage for the Certified MobileStream software and Network Interface Card (NIC) kit, as well as the Certified InfiniStreamNG Server, resulting in single-source system support for customers.

NETSCOUT Certified MobileStream Software Appliances are available in the following configuration:

Certified MobileStream Software from NETSCOUT (includes ASI Accelerator NIC)

- Y-02795-001-1 Certified MobileStream Software, includes NETSCOUT 4-Port 10G ASI Accelerator NIC, 1-socket, for use with C-02700 series certified appliance hardware
- Y-04895-001-2 Certified MobileStream Software, includes NETSCOUT 4-Port 10G ASI Accelerator NIC, 2-socket, for use with C-04800 series certified appliance hardware
- Y-09895-001-2 Certified MobileStream Software, includes NETSCOUT 4-Port 10G ASI Accelerator NIC, 2-socket, for use with C-09800 series certified appliance hardware
- Y-09807-001-2 Certified MobileStream Software, includes NETSCOUT 2-Port 40G ASI Accelerator NIC, 2-socket, for use with C-09800 series certified appliance hardware
- Y-09802-001-2 Certified MobileStream Software, includes NETSCOUT 2-Port 100G ASI Accelerator NIC, 2-socket, for use with C-09800 series certified appliance hardware

Certified MobileStream uses the same InfiniStreamNG Server from a NETSCOUT-Certified Supplier

- C-02700-XSJA1 Certified InfiniStreamNG Server, 1U, Single 22-Core CPU, 192GB RAM, 32TB (4x8TB, Not Expandable), AC
- C-02700-XSJD1 Certified InfiniStreamNG Server, 1U, Single 22-Core CPU, 192GB RAM, 32TB (4x8TB, Not Expandable), DC
- C-04800-XSJA2 Certified InfiniStreamNG Server, 1U, Dual 22-core CPUs, 384GB RAM, 32TB (4x 8TB, Expandable), AC
- C-04800-XSJD2 Certified InfiniStreamNG Server, 1U, Dual 22-core CPUs, 384GB RAM, 32TB (4x 8TB, Expandable), DC
- C-09800-QSJA2 Certified InfiniStreamNG Server, 3U, Dual 22-Core CPU, 384GB RAM, 128TB (16x8TB, Expandable), AC
- C-09800-QSJD2 Certified InfiniStreamNG Server, 3U, Dual 22-Core CPU, 384GB RAM, 128TB (16x8TB, Expandable), DC

Configuration and environmental specifications for these NETSCOUT Certified MobileStream Software Appliance options are provided in the tables that follow.

NETSCOUT-Certified MobileStream Software Appliance Specifications

Acquired from NETSCOUT

	Y-02795-001-1	Y-04895-001-2	Y-09895-001-2	Y-09807-001-2	Y-09802-001-2
Software	NETSCOUT Certified MobileStream Software				
Accelerator NIC Power Consumption	30 Watts including SFP+ SR modules			75 Watts including QSFP+ modules	75 Watts including QSFP28 modules
Accelerator NIC Environmental	Operating Temperature: 0 °C to 45 °C (32 °F to 113 °F) Operating Humidity: 20% to 80%				
Accelerator NIC Physical	Dimensions: 1/2 length, full height PCIe 3.0				
Accelerator NIC Monitoring Ports	4x 1GbE SFP or 10GbE SFP+			2x 40GbE QSFP+	2x 100GbE QSFP28
Transceivers (Ordered Separately)	SFP: Multi-mode SX, single-mode LX, 1000BASE-T SFP+: Multi-mode SR, single-mode LR			QSFP+: Multi-mode SR4, Single-mode LR4	QSFP28: Multi-mode SR4, Single-mode LR4

Acquired from a NETSCOUT-Certified Supplier

Server	C-02700	C-04800
Processor	Single 22-core processor	Dual 22-Core processors
Memory	6x 32GB DDR4 (192G Total)	12x 32GB DDR4 (384G Total)
Storage	32TB (RAID 5) 4x 8TB, 3.5" NL-SAS HDD, 512e sector size, 12 Gb/s	32TB (RAID 5) 4x 8TB, 3.5" NL-SAS HDD, 512e sector size, 12 Gb/s
Management Port	2 onboard Gigabit/10 Gigabit Ethernet LAN RJ45 ports (eth0 used for mgt) One dedicated 1-Gigabit IPMI RJ45 port for remote management	
Embedded OS	Solid State Drive (SSD) dedicated to Linux® OS	
Rack Unit	1 Rack Unit (1 RU)	1 Rack Unit (1 RU)
Dimensions	Height: 1.7 in (43 mm) Width: 17.2 in (437 mm) Depth: 25.6 in (650 mm)	Height: 1.7 in (43 mm) Width: 17.2 in (437 mm) Depth: 25.6 in (650 mm)
Weight	38 lbs. (17.24 kg)	38 lbs. (17.24 kg)
Mounts	Rack mount slide rails included	

Environmental Specifications (Appliance with NETSCOUT NIC Installed)

	C-02700 Series	C-04800 Series
Power Rating (AC)	Hot swappable, redundant, auto-ranging: 700W: 100-140 VAC, 50-60 Hz, 8.0-6.0 Amp 750W: 200-240 VAC, 50-60 Hz, 4.5-3.8 Amp	Hot swappable, redundant, auto-ranging: 700W: 100-140 VAC, 50-60 Hz, 8.0-6.0 Amp 750W: 200-240 VAC, 50-60 Hz, 4.5-3.8 Amp
Maximum Consumption (AC)	6.5A, 655W	6.5A, 655W
Heat Dissipation (AC)	2235 BTU/Hr	2235 BTU/Hr
Power Rating (DC)	-48VDC, 650W, 20A (x2), hot-swappable, redundant	-48VDC, 650W, 20A (x2), hot-swappable, redundant
Maximum Consumption (DC)	13.7A, 658W	13.7A, 658W
Heat Dissipation (DC)	2245 BTU/Hr	2245 BTU/Hr
Operating Vibration	0.25G from 5-200Hz for 15 minutes	0.25G from 5-200Hz for 15 minutes

	C-02700 Series	C-04800 Series
Operating Temperature	41° to 95°F (5° to 35°C) for altitude less than 950 m or 2953 ft with no direct sunlight on the equipment	41° to 95°F (5° to 35°C) for altitude less than 950 m or 2953 ft with no direct sunlight on the equipment
Operating Humidity	8% - 90% (non-condensing)	
Storage Temperature	-40° to 149°F (-40° to 65°C)	
Storage Humidity	5% to 95% RH with 91°F (33°C) maximum dew point. Atmosphere must be non-condensing at all times.	
Maximum Temperature Gradient (Storage and Operating)	36°F in an hour (20°C/h) and 9°F in 15 minutes (5°C/15 min)	
Operating Altitude De-rating	Maximum operating temperature is reduced by 1.8°F/984 ft (1°C/300 m) above 2953 ft (900 m)	
Altitude	-50 to 10,000 ft (-16 to 3,048 m)	-45 to 9,500 ft (-13.7m to 2,896 m)
Operating Mechanical Shock	1 shock pulse up to 20G for up to 2.5ms	1 shock pulse up to 20G for up to 2.5ms
Regulatory Approvals	Regulatory Model Number: NV51U, FCC Part 15 Class A, CE Mark (EN55032 Class A, EN 55024, EN 61000-3-2, EN 61000-3-3), VCCI (Japan) Class A, RRA (Korea) KC Cert #: R-R-NSZ-NV51U, CCC Class A (China), EAC (Russia), BIS (India), CM (Morocco), UL-C of C (Mexico), BSMI (Taiwan), LoA (South Africa), UL 60950-1/62368-1, CAN/CSA C22.2 No. 60950/62368-1, IEC 60950-1/62368-1, EN 60950-1/62368-1, CB Report	Regulatory Model Number: NV53U, FCC Part 15 Class A, CE Mark (EN55032 Class A, EN 55024, EN 61000-3-2, EN 61000-3-3), VCCI (Japan) Class A, RRA (Korea) KC Cert #: R-R-NSZ-NV53U, CCC Class A (China), EAC (Russia), BIS (India), CM (Morocco), UL- C of C (Mexico), BSMI (Taiwan), LoA (South Africa), UL 60950-1/62368-1, CAN/CSA C22.2 No. 60950/62368-1, IEC 60950-1/62368-1, EN 60950-1/62368- 1, CB Report

Acquired from a NETSCOUT-Certified Supplier

Server	C-09800
Processor	Dual 22-Core processors
Memory	12x 32GB DDR4 (384G Total)
Storage	128TB, 16x 8TB, 3.5" NL-SAS/ SAS HDD, 512e sector size, 12Gb/s
Management Port	2 onboard Gigabit/10 Gigabit Ethernet LAN RJ45 ports (eth0 used for mgt) One dedicated 1-Gigabit IPMI RJ45 port for remote management
Embedded OS	Solid State Drive (SSD) dedicated to Linux® OS
Rack Unit	3 Rack Unit (3 RU)
Dimensions	Height 5.2 in (132 mm) Width: 17.2 in (437 mm) Depth: 25.5 in (648 mm)
Weight	82 lbs. (37.19 kg)
Mounts	Rack mount slide rails included

Environmental Specifications (Appliance with NETSCOUT NIC Installed)

	C-09800 Series
Power Rating (AC)	Hot swappable, redundant, auto-ranging 1000W: 100-127V, 15-12A, 50-60Hz 1200W: 200-240V, 8.5A-7A, 50-60Hz
Maximum Consumption (AC)	100V, 9.8A, 1000W
Heat Dissipation (AC)	3412 BTU/Hr
Power Rating (DC)	-48VDC, 1010W, 24A (x2), hot swappable, redundant
Maximum Consumption (DC)	21.7A, 1042W

	C-09800 Series
Heat Dissipation (DC)	3554 BTU/Hr
Operating Vibration	0.75G at 5-200 Hz
Operating Temperature	50° to 95°F (10° to 35°C) with no direct sunlight on the equipment
Operating Humidity	8% - 90% (non-condensing)
Storage Temperature	-40° to 149°F (-40° to 65°C)
Storage Humidity	5% to 95% RH with 91°F (33°C) maximum dew point. Atmosphere must be non-condensing at all times.
Maximum Temperature Gradient (Storage and Operating)	36°F in an hour (20°C/h) and 9°F in 15 minutes (5°C/15 min)
Operating Altitude De-rating	Maximum operating temperature is reduced by 1.8°F/984 ft (1°C/300 m) above 2953 ft (900 m)
Altitude	-45 to 9,500 ft (-13.7m to 2,896 m)
Operating Mechanical Shock	1 shock pulse up to 40G for up to 2ms
Regulatory Approvals	Regulatory Model Number: NV53U, FCC Part 15 Class A, CE Mark (EN55032 Class A, EN 55024, EN 61000-3-2, EN 61000-3-3), VCCI (Japan) Class A, RRA (Korea) KC Cert #: R-R-NSZ-NV53U, CCC Class A (China), EAC (Russia), BIS (India), CM (Morocco), UL- C of C (Mexico), BSMI (Taiwan), LoA (South Africa), UL 60950-1/62368-1, CAN/CSA C22.2 No. 60950/62368-1, IEC 60950-1/62368-1, EN 60950-1/62368- 1, CB Report

Arbor Sightline Mobile Deployment Scaling

BGP Routes (Unique)	25,000,000
Flows Per Second (Non-Sampled)	48,000,000
Monitored GTP-u Infrastructure Nodes	5,000
Monitored GTP-u Infrastructure Interfaces	200,000
Total Interfaces	550,000
Appliances/Virtual Machines	150
Data Handling Rules (Managed Objects)	20,000

Arbor Sightline Virtual Machine Requirements

	VMware	KVM
Hypervisor	VMware Sphere v5.5, 6.0 and 6.5	KVM QEMU v2.11
vCPUs	8 to 32	8 to 32
Network Interfaces	1 to 10	1 to 10
Memory	16, 24 or 32GB	16, 24 or 32GB
Storage	100GB min	100GB min

Note: Consult the product documentation for specific recommendations.

Arbor Sightline Appliance Specifications

	SP 7500
Network Interfaces	2 x 1/10G (copper) via onboard interfaces and 4 x 10G (SFP+ for SR/LR only) via NIC
Embedded OS	ArbOS is Arbor's proprietary, embedded operating system, based on Linux
Rack Unit	2 Rack Unit (2RU)
Dimensions	3.45 in (876 mm) Height 17.14 in (435.4 mm) Width 20 in (508 mm) Depth
Weight	44 lbs (20 kg)
Mounts	Standard 19 inches and 23 inches rack mountable
Power Rating	Redundant, load sharing and auto-sensing 850W dual power supples; AC: 100-240 VAC, 50/60 Hz, 10/5 Amp DC: -40 to -72 V, 25/12.5 Amp
Operating Temperature	41 °F to 131 °F (-5 °C to 55 °C)
Operating Humidity	95%, non-condensing at 23 °C (73 °F) to 40 °C (104 °F)
Regulatory Approvals	UL/cUL/EN/IEC 62368-1; EN 55032; EN 55035; CISPR 32, 35; ETSI EN 300 386; cULus Mark; IC ICES-003 Class A; EN 61000-3-2; EN 61000-3-3; EMC Directive 2014/30/EU; Low Voltage Directive 2014/35/EU; UL 60950-1 2nd edition/CSA C22.2 No.60950-1-07 2nd Edition; FCC 47 CFR Parts 15, Class A; CB Certificate & Report including all international deviations; RoHS 2011/65/EU; Moroccan Conformity Mark; VCCI (Japan); BIS (India); CCC (China); RCM (Australia/New Zealand); KCC (South Korea); EAC-R Approval (Russia); South Africa LoA; Mexico (UL-CoC for Mexico); NEBS-ready

ASI Technology

ASI technology transforms network traffic and synthetic testing results into smart data, providing real-time visibility into user experience for the most advanced and adaptable information platform to ensure security, manage risk, and drive service performance.

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NETSCOUT offers sales, support, and services in over 32 countries. Global addresses, and international numbers are listed on the NETSCOUT website at: www.netscout.com/company/contact-us

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