xSIGHT™ Traffic Storage Agent (TSA)

Mobile Network, Service, Customer KPI Generation, and Traffic Storage and Retrieval

xSIGHT TSA uses Viavi-patented innovation to:
- Identify the application in use and to determine customer quality of experience (QoE)
- Deliver performance and QoE metrics up to 15x faster at a lower cost than traditional competing solutions
- Store and retrieve control-plane messages in near-real time to enable on-demand transaction tracing

xSIGHT Customer Experience Assurance (CEA) Portfolio

The xSIGHT CEA portfolio consists of three layers:
- Agents that collect data from variety of sources including traffic, network elements (NEs), and probes
- A real-time intelligence platform that adapts, enriches, and correlates data
- A cloud-based portal providing operator access to xSIGHT analytical applications

TSA is an xSIGHT data access agent that passively monitors both control and user-plane IP-based traffic to build network, service, and customer (KPI) SMARTmetrics that are then fed to the xSIGHT RTI platform or to third-party key performance indicator (KPI) apps. The TSA also captures and stores control-plane line-rate traffic with a Viavi-patented indexing method for quick retrieval by transaction-tracing troubleshooting applications. The TSA is available in either a physical (server plus Viavi software) or virtualized configuration (Viavi software for running on a virtual machine).

Key Benefits
- Increases visibility into customer application experience
- Significantly lower cost than traditional monitoring solutions for the same visibility and throughput levels
- Significantly lower cost than traditional protocol transaction tracing tools without reducing diagnostic insight

Key Features
- Fast response and high granularity user-plane visibility engine
- Patented service, app, and URL categorization process with very broad coverage
- Value-based KPI generation process
- SMARTmetrics™ KPI feed for third-party applications
- Viavi-patented indexing method that captures, stores, and quickly searches and retrieves line-rate data
- Virtualization-ready architecture

Use Cases
- Monitor mobile network, service, and customer performance in real time
- Troubleshoot mobile network, service, and customer performance faults
SMARTmetrics — Quickly Gain Deep and Granular User-Plane Visibility

Based on a streamlined, KPI generation process, the xSIGHT TSA quickly delivers SMARTmetrics insight into both control and user-plane performance. For control-plane KPIs, a record is generated for every low-volume event, but high-volume events generate records only for “fails,” along with the number count of successes. For user-plane KPIs, xSIGHT measures over a timed period rather than over the duration of an individual subscriber call/data session.

<table>
<thead>
<tr>
<th>Time</th>
<th>IMSI</th>
<th>Cell ID</th>
<th>IMEI</th>
<th>IP Addr</th>
<th>TCP</th>
<th>Win Size</th>
<th>Delay</th>
<th>Load Time</th>
<th>TTL</th>
<th>X Transmits</th>
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Example of SMARTmetrics (user-plane) record

SMARTmetrics — Identify User Services, Apps, and URLs

Using a patented domain name system (DNS)-based method, or a powerful deep packet inspection (DPI) engine, the xSIGHT TSA can identify hundreds of end-user applications. With both the revenue value of traffic and the acceptable network performance requirements varying greatly, depending on the end-user application, the ability to identify these applications is critical for effective mobile assurance.

- Line
- WhatsApp
- MSN
- Skype
  ...

Messaging

- Quake
- Xbox
  ...

Gaming

- YouTube
- FaceTime
- Netflix
  ...

Video

- Facebook
- Google+
- Twitter
  ...

Social Networking

- IMAP
- POP3
- Gmail
- Hotmail
  ...

Mail

- Bit torrent
- eDonkey
- Thunder
  ...

Peer to Peer

Example user applications and categories

SMARTmetrics — Vary KPI Detail Based on Traffic Value

The xSIGHT TSA supports a new value-based KPI generation process that, based on user-entered (traffic) value definitions, automatically varies KPI generation depending on the traffic’s value. In the mobile broadband era, traffic value varies greatly so it does not make financial sense, from an assurance solution perspective, to analyze it all the same way.

Minimal processing is applied to low-value traffic to get basic, summarized performance analytics. However, more processing is applied to high value traffic, such as from high-revenue services or VIP business subscribers, to gain deep insight into the individual customer experience for services and over-the-top (OTT) applications.

SMARTmetrics — KPI Feeds for Third-Party Applications

In addition to feeding xSIGHT applications, the TSA can to supply SMARTmetrics insight to non-Viavi third-party applications. FlexibleTAA feed content can be configured to output only the data a third-party application requires. This minimizes the processing burden placed on the third-party application, lowering the costs of the overall solution. TSA feeds cover both control- and user-plane insight, and the data can be streamed as it is collected or output in batches at timed intervals.

Capture and Store Traffic at Line Rate, Plus Find and Retrieve Data Fast

The xSIGHT TSA captures control-plane traffic frames at line rate and writes them to disk while indexing in real time. The Viavi-patented indexing method, including indexing by IMSI, IMEI, and MSISDN, enables very fast data search and retrieval. This functionality can then supply traffic associated with end-user data sessions/calls to troubleshooting apps "on demand" eliminating the need to similarly process all traffic as it is captured/stored.

Since typically less than 0.01% of end-user sessions/calls need to be analyzed by traffic-based troubleshooting apps, the ability to process traffic on demand rather than processing all traffic can significantly save costs for the overall troubleshooting solution.
Virtualization-Ready Architecture

The TSA was designed from day one to support deployment in virtualized networks. Without relying on proprietary hardware (unlike its traditional equivalents), the agent can run on either commercial-off-the-shelf (COTS) servers or virtual machines. This allows the TSA to access traffic on virtual network interfaces and assure services carried over NFV and hybrid (physical/NFV) networks. See the “Complementary Products and Services” section for more details on the virtualized TSA.

Use Case — Monitor Network, Service, and Customer Performance in Real Time

The xSIGHT TSA is the ideal agent for generating traffic-based mobile KPIs that Viavi xSIGHT and third-party monitoring applications use for identifying pending, or recently occurring, customer-impacting issues. Its ability to deliver quick SMARTmetrics including user-app analysis and value-based KPI analytics makes the xSIGHT TSA much more effective than similar products—and at a lower cost.

Use Case — Troubleshoot Performance Faults

The xSIGHT TSA is a key enabler of two complementary mobile fault troubleshooting methods. With its line-rate (control-plane) traffic capture, storage, and fast data search and retrieval functionality, the TSA supports traditional protocol transaction tracing and decoding apps (such as the xSIGHT Session Trace app), but at a much lower cost than competing solutions. The TSA SMARTmetrics facility is ideal for fault troubleshooting with a new KPI metric method that the xSIGHT CEA and Performance Explorer applications support. This method is faster and requires less skill than transaction tracing, and it can diagnose many issues. In areas that still require transaction tracing to diagnose issues, pre-using the KPI metric drill-down will speed up this process significantly.

Complementary Products and Services

Virtualized Traffic Storage Agent (vTSA) — The virtualized version of the TSA is configured for use in NFV networks, where it is able to access traffic at virtual network interfaces. The vTSA is supported for use in VMware ESX and RedHat KVM virtual machine environments. Please contact your Viavi representative for details of support on other virtualized environments.

Traffic Analysis Agent (TAA) — TAA is an xSIGHT data access agent that builds network, service, and customer (KPI) SMARTmetrics that are then fed to the xSIGHT mediation component or to third-party KPI-based apps. Unlike the TSA, the TAA does not capture and store control-plane traffic. The TAA is available in either a physical (server plus Viavi software) or virtualized configuration (Viavi software for running on a virtual machine).

Customer Experience Assurance (CEA) Applications — These xSIGHT applications deliver multidimensional KPI analysis in real time, linking the customer experience to the underlying network and service performance. It enables the industry’s most powerful assurance workflows with customer QoE “impact analysis” of detected issues and problem diagnosis via fast metric (KPI) drill-down.
Performance Explorer (PE) Applications — These xSIGHT applications provide fully flexible, in-depth, analysis of any operator-selected aspect of network, service, or customer performance. A single screen with charts shows selected KPIs, for example, two associated dimensions and a failure code breakdown. This application is ideal for comparing pre- and post-event performance, such as managing network changes and investigating the root causes for problems.

Session Trace Application — A member of the xSIGHT Diagnostics category, this application provides control-plane transaction tracing and full protocol decoding functionality for selected individual calls or data sessions. When used with the xSIGHT TSA, Session Trace lets you build transaction traces on-demand in real time, a methodology that significantly saves processing and storages costs compared to traditional solutions which build correlated records for all calls and data sessions up-front.

Targeted Subscriber Search (TSS) Agent and Application — A member of the xSIGHT Session Trace category, this application selectively (based on IMSI) captures full user-plane packets at line rate, enabling detailed analysis of the user-plane content by third-party products, such as Wireshark®.

Viavi Professional Services — xSIGHT solutions are deployed, transitioned to production environments, and supported by our industry-leading professional services team.

- Rapid turnkey deployment with acceptance testing ensures full satisfaction before handover
- Maximize investment through user-adoption services
- Keep systems up to date through software upgrades
- Increase productivity with ongoing access to industry-leading experts that get to know your network, services, and your customers

The initial solution price includes a competitive support package with first year telephone support and software updates.

Our services organization spans the globe and, on average, our service consultants have over 15 years of experience.

Specifications

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<th>Physical Parameters</th>
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<tr>
<td><strong>Interface configuration</strong></td>
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<td><strong>KPI output format</strong></td>
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<td><strong>Control plane traffic storage capacity</strong></td>
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<th>User-Plane Traffic Storage Capacity (Optional additional unit)</th>
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<td><strong>Server information</strong></td>
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<td><strong>User-plane traffic storage capacity</strong></td>
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Interface Support

- **KPI Generation**
  - 2G/3G voice service control-plane interfaces
  - 2G/3G/LTE data service control-plane interfaces
  - 2G/3G/LTE data service user-plane interfaces
  - VoLTE service control-plane interfaces
  - VoLTE service user-plane interfaces

- **Control-Plane Traffic Storage**
  - 2G/3G voice service control-plane interfaces
  - 2G/3G/LTE data service control-plane interfaces
  - VoLTE service control-plane interfaces

Ordering Information

Please contact your Viavi representative for more information or for ordering assistance.