REALIZE IMPROVED NETWORK TESTING AND TROUBLESHOOTING EFFICIENCY

Tektronix Communications’ Portable Network and Service Analyzer (NSA) solutions meet the ever-changing challenges facing Mobile Network Operators and Network Equipment Manufacturers (NEMs). With the Portable NSA application suite, NEM labs, CTO offices, and carrier labs can identify network problems and service quality degradation quickly and easily across LTE, UMTS (including HSPA), and 2.5G/2G networks.

Trace subscribers’ calls both in real time and offline over multiple interfaces and network elements, including control and user plane analysis. With support for all major vendors, the Portable NSA solutions provide a benchmarking application for a wide variety of network elements. Automatic link and topology detection reduces the time to configure the system, providing the flexibility you need to take your monitoring system where you need it most.

KEY FEATURES

- Portable Rack or Workstation Configurations
- 2G/3G/LTE and Mobile NGN (Next Generation Network) Support
- End-to-End Multi-Interface Call Trace
- First to Market with Online LTE UU Monitoring
- Multi-Vendor Support
- Automatic Network Topology Detection
- Message Statistics and KPIs
- Deep-Dive Troubleshooting
Featured NSA Tools

Message Statistics/Chart Analysis
Message statistics and chart analysis are important NSA tools for quickly analyzing, troubleshooting and optimizing mobile networks and services. Highlights of the information provided by these tools includes:

- Statistical information, such as mean, average, min, and max for selected calls
- Call-based Control Plane (CP) and User Plane (UP) information over time (delay, packet loss)
- Radio charts showing network quality during calls
- Transmit power, allocated bearer, timing advance, Channel Quality Indication (CQI) requests, and re-transmissions
- Chart analysis and drill down filtering to identified calls

End-to-End Call Trace
With its capability for “drilling-up” from individual messages to related call traces, NSA enables rapid troubleshooting of user-experience related events. Use the call trace features to:

- Correlate messages from different interfaces, showing full end-to-end call flow
- Trace calls between different access technologies
- Correlate captures from different systems

Solution Compliance per Technology
Built upon Tektronix Communications' world-leading monitoring solutions and expertise, the Portable NSA monitoring solution combines both hardware and software to provide a testing capability to meet the Test and Deep-Dive Troubleshooting demands of Network Operators and Equipment Manufacturers. Key technologies supported include the following:

2G/2.5G
More than 80% of network infrastructure worldwide still utilizes 2G/2.5G technology for voice, with GPRS and EDGE still providing the basic data services. Compliance support includes:

- Interfaces: Abis/A/Gb/Gn/Gi/INAP/MAP
- 3GPP Release 10
- GSM-R support
- Decoding of Abis LAPD/IP/RSL Control Plane
- Decode GPRS Abis CP and UP

3G/HSDPA/HSUPA/HSPA+
3G and High Speed Data services have paved the way for the success of smartphones and data terminals. NSA offers an extensive toolset for performance monitoring and troubleshooting. Compliance support includes:

- Interfaces: Iub/Iur/IuCs/IuPS/Nc/Mc
- 3GPP Release 10
- IuFlex
- Gapless Monitoring
- HS-DSCH Type 1, 2 and 3 supported
Frame Monitor

Support for down-to-the-bit protocol decoding is provided by NSA’s Frame Monitor. Capable of displaying all messages down to the physical layer, the tool’s features include:

- Quick and advanced filtering
- Free-text search and quick-column adding
- Import and export pcap files (up to 8GB)

Predefined Reports

Portable NSA includes many pre-defined reports to help users spend more time analyzing and less time building reports. The following reports are included:

- Successful/failed voice and packet data calls
- Identify Silent Calls (by mobile originated, mobile terminated, TOP N cells, and TOP N handsets)
- Multi-RAB (analysis by RAB-Type, handset, radio quality, and failure causes)
- Top 10 (includes handsets, cells, and NodeBs)
- Calls per Interface, including duration and release causes and procedure delay

Solution Compliance per Technology (continued)

4G/LTE

Competitive pressure in the emerging 4G market is placing tough demands on reducing the time-to-market of related products. NSA can help managers meet the challenge to reduce the time required for product test and verification. Compliance support includes:

- Interfaces: UU/X2/S1/S3/S4/S5/S6a/S8/S10/S11/S13/S101/SGs/Gx/SGi
- 3GPP Release 10
- RRC signaling from UU traceport for Ericsson, Huawei, NSN, ALU

*SCD (Solution Compliance Document) available upon request
## Portable Monitoring Solutions

The Portable NSA solutions are available in three hardware platforms addressing user requirements from lightweight to high-performance.

<table>
<thead>
<tr>
<th>Portable Rack*</th>
<th>Portable Workstation</th>
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<tbody>
<tr>
<td><strong>Supported Networks</strong></td>
<td><strong>High-performance all-IP networks 2G/3G/LTE</strong></td>
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<tr>
<td>- Legacy and IP 2G/3G/LTE</td>
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<tr>
<td>- High-performance all-IP networks 2G/3G/LTE</td>
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<tr>
<td><strong>Supported Hardware and Connections</strong></td>
<td><strong>Up to 2 High.Link cards (4x1G or 2x10G each)</strong></td>
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<tr>
<td>- Up to 6 K18</td>
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<tr>
<td>- Up to 6 K18</td>
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<tr>
<td>- Supports E1/T1/(Ch-)STM-1/GbE with K18</td>
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<tr>
<td>- Optional E1/STM-1 Groomer Support</td>
<td></td>
</tr>
<tr>
<td>- Optional E1/STM-1 Groomer Support</td>
<td></td>
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<tr>
<td><strong>Processor and Memory Configuration</strong></td>
<td><strong>Dual Intel Xeon E5-2650</strong></td>
</tr>
<tr>
<td>- Intel Xeon X3480 Quad Core</td>
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<tr>
<td>- Intel Xeon X3480 Quad Core</td>
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<tr>
<td>- 16 GB RAM</td>
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<tr>
<td>- 32 GB RAM</td>
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<tr>
<td>- 2 TB HDD</td>
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<tr>
<td>- 6 TB HDD</td>
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<tr>
<td><strong>Operating System</strong></td>
<td><strong>Microsoft Windows 2008 Server</strong></td>
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<td>- Microsoft Windows 2008 Server</td>
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<tr>
<td>- Microsoft Windows 2008 Server</td>
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</tr>
<tr>
<td><strong>Dimension</strong></td>
<td><strong>166.3 mm D</strong></td>
</tr>
<tr>
<td>- 3U/5U rack versions</td>
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<tr>
<td>- 20-30 kg</td>
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<tr>
<td>- 378.4 mm H x 420.8 mm W x 166.3 mm D</td>
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<tr>
<td>- 8-10 kg (depending on configuration)</td>
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</tbody>
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*Optional laptop implementation available for low traffic volumes. Typically used for monitoring E1/T1 or GbE via one or two probes.

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About Tektronix Communications:
Tektronix Communications provides service providers and equipment manufacturers around the world an unparalleled suite of network diagnostics and service assurance solutions for fixed, mobile, IP and converged multi-service networks. This comprehensive set of solutions support a range of architectures and applications such as LTE, fixed mobile convergence, IMS, broadband wireless access, WiMAX, VoIP and triple play.

Tektronix Communications is headquartered in Plano, Texas.

Learn more about the company’s test, measurement and service assurance solutions by visiting www.tekcomms.com

For Further Information:
Tektronix Communications maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology.

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