

# JDSU Signaling Analyzer Real Time for LTE

## The Premier Protocol Analysis & Network Diagnostics



### Key Features

- Only solution that provides end-to-end support of the entire migration to LTE
- Extensive RF Performance Analysis and Optimization for LTE networks
- Distributed probing/hardware intelligence for speed, scaling and cost-efficient analysis
- Multi-user architecture for dramatic acceleration of troubleshooting and enhanced savings

### Applications

- Real-time monitoring, network diagnostics and troubleshooting
- Correlation and Analysis of protocol signalling messages produced by multiple network technologies at mobile network interfaces.
- Performance Analyzer provides comprehensive real-time measurements against key performance indicators (KPIs) as they are defined by LTE standards organizations.

The wireless industry's steady march toward Long Term Evolution (LTE) networks is likely to become a stampede, given the expanding and extremely competitive mobile broadband marketplace. By 2015, carriers will need to deliver voice, video and advanced IP services to upwards of 2 billion subscribers, who will expect service quality to exceed what they experience now. A properly deployed LTE network has the bandwidth and speed to handle consumer demand. It is all-IP, has a simpler, flatter architecture, and requires fewer network elements. In light of these technical benefits and the hundreds of billions in revenues at stake, there is an enormous pressure to rush LTE to market. Yet stampedes can cause mistakes that quickly erase early-to-market advantages.

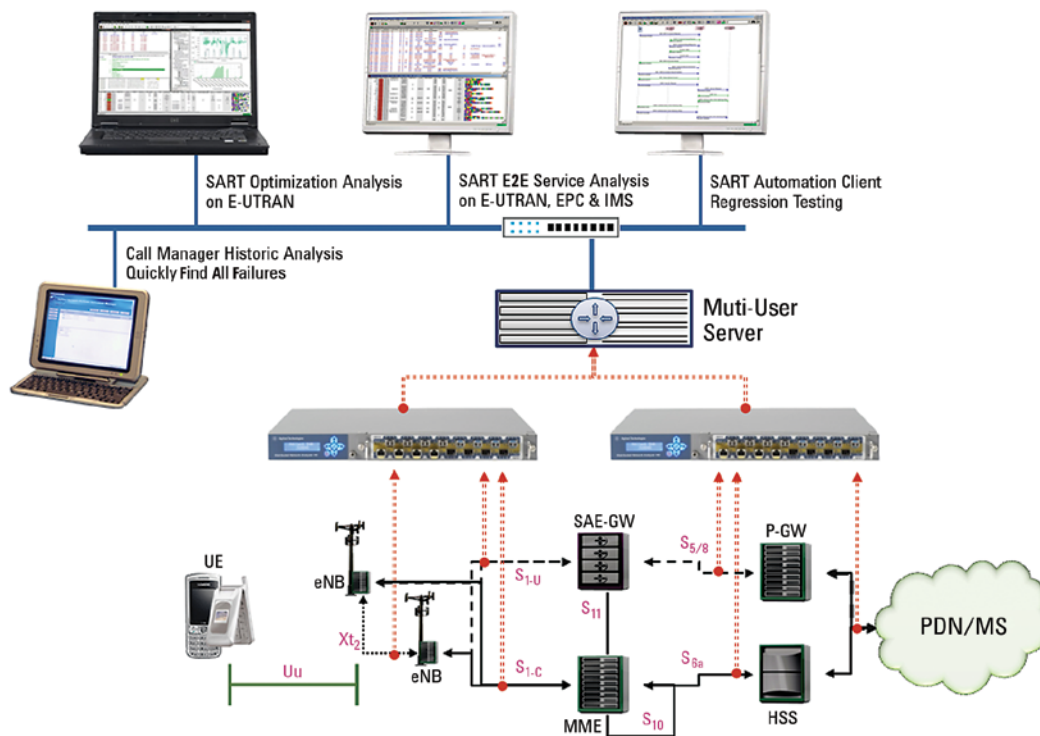
Network equipment manufacturers (NEMs) and service providers need to develop, deploy and manage the technology in a way that ensures a high-quality of service while minimizing capital expenditures and operating costs. The JDSU Signaling Analyzer Real Time (SART) for LTE enables you to design and deploy equipment that meets specification and quality standards, verifies new services, significantly accelerates cycle time, and generates profits faster. The JDSU SART is the only solution that provides end-to-end support for the entire migration to LTE.

### What SART for LTE does, and why it leads the industry

The JDSU proven SART platform provides the test industry's most complete real-time monitoring, network diagnostics and troubleshooting by interpreting, correlating and analyzing protocol signaling messages produced by multiple network technologies at mobile network interfaces. SART for LTE is a comprehensive extension of this platform, which also covers virtually all mobile networks—2G, 3G, CDMA2000/CDMA 1xEVDO, etc.—as well as IMS infrastructures. IMS will be the delivery mechanism for advanced IP services. SART for LTE works today, and it works extremely well, which is why the largest and most commercially successful NEMs and early adopting carriers already use it. What impressed these industry leaders? Although our competitors' products can perform several tasks, SART for LTE's integrated breadth and depth of capabilities simply have no counterpart.

## Distributed probing/hardware intelligence for speed, scaling and cost-efficient analysis

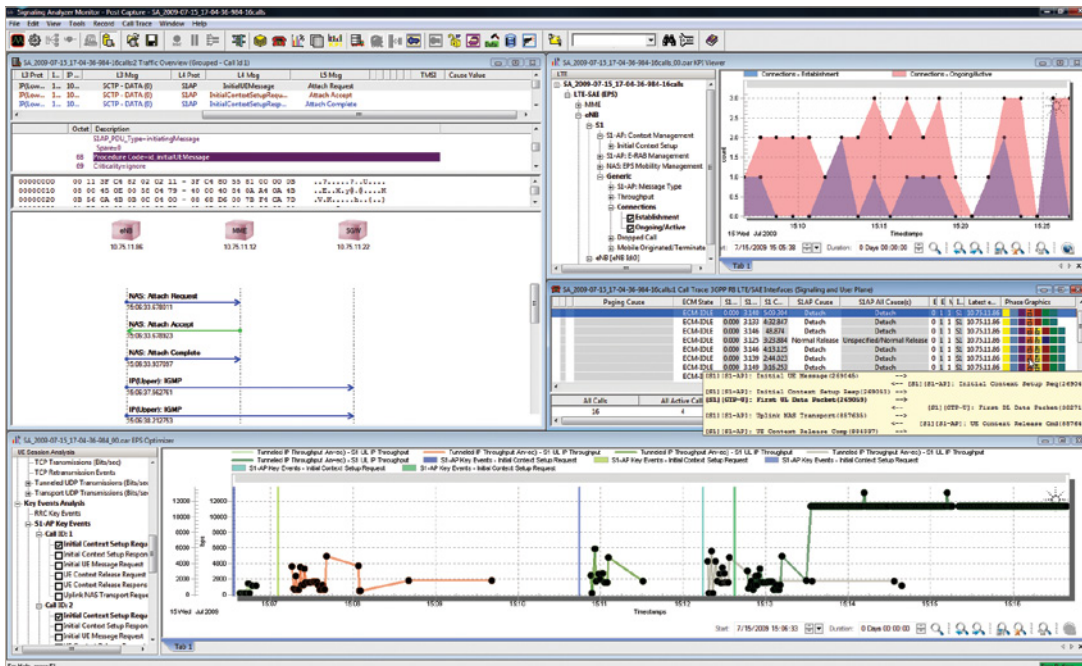
We can expect a tenfold increase in data performance with LTE over existing 3G networks, and SART will accommodate this with distributed probing and hardware intelligence. SART probes can tap any network interface required. This distributed probing, combined with SART's breadth of technology coverage, allows you to capture and correlate information from multiple interfaces both within an LTE network and at interfaces with other network technologies—a critical capacity for troubleshooting whole networks in the "real world." Moreover, much of the data processing occurs within the probes themselves. It is this hardware-assisted analysis and processing that allows the system to meet the ever-increasing performance demands posed by LTE. By distributing the processing, analysis is performed as rapidly and efficiently as possible, which allows SART to scale without overwhelming the software. By delivering the data to engineers, SART eliminates the time and expense of requiring engineers to take point solutions to the data.



True Multi-User Architecture – Probe Once, Test Many.

## Multi-user architecture for dramatic acceleration of troubleshooting and enhanced savings

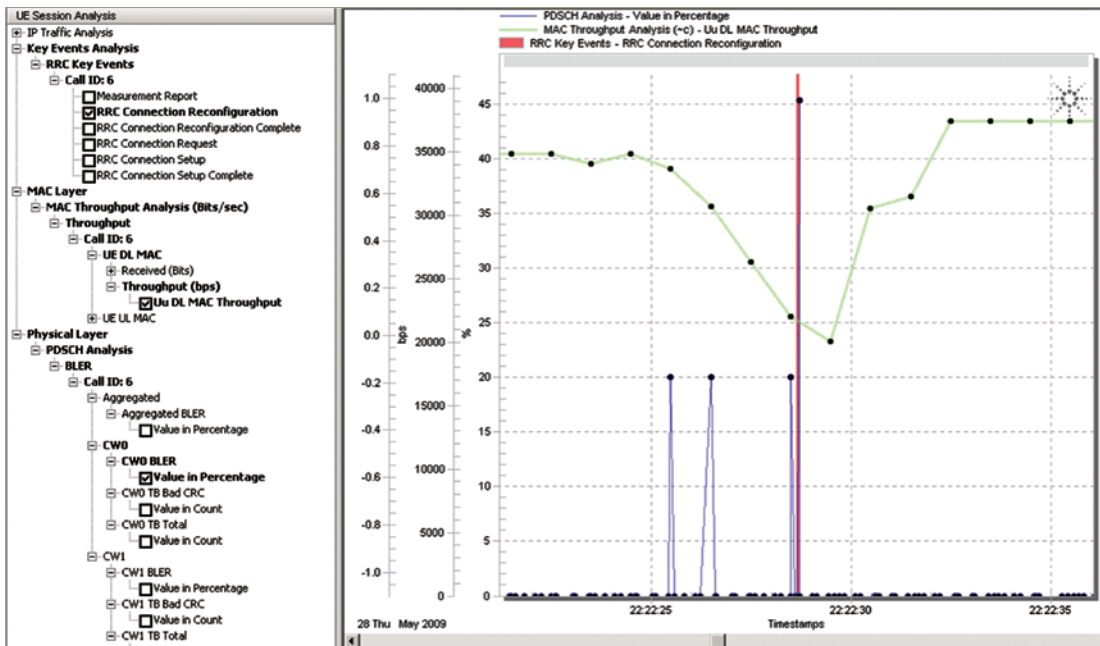
SART for LTE data can be used concurrently by multiple test engineers with different jobs and interests. When these jobs are performed simultaneously, overall analytic, diagnostic and troubleshooting functions require radically less time and money. JDSU customers report that tasks which once took five to six hours can now be completed in fifteen minutes. The multi-user architecture also reduces capital expenditures. For example, if five users work in parallel, SART only needs to tap and probe a data link once. Other solutions would require five different tap points and the additional hardware to carry that out. NEMs and service providers can maximize return on investment by purchasing the hardware one time and then simply add software clients as needed. In addition, the solution's robust Applications Programming Interface (API) enables workflow automation that can occur simultaneously with other analysis activities. It is through SART's robust analysis capabilities and true client-server, multi-user architecture that we enable you to accelerate development and deployment; reducing time-to-revenue and per-hour operating costs.



SART Comprehensive Analysis

SART for LTE delivers a comprehensive suite of intelligent measurement and analysis applications that deliver both accurate results and reduce time-to-results by allowing you to focus on your test objectives and not on the tool itself. From a robust decoding engine that provides bit-level detail to full multi-interface performance and optimization analysis, you can use it for the full range of development, trial/deployment and optimization activities. SART's powerful Call Trace correlates and tracks all procedures and functions across each involved interface, enabling the full end-to-end analysis essential to root cause isolation. When you couple Call Trace with our Call Manager Server, you can collect results over extended test times, which is perfect for system regression and historic analysis. You can use the same tools just as effectively at far higher performance levels during load and stress testing, network trials, optimization and deployment.

SART's new real-time Performance Analyzer is particularly valuable across the technology-adoption chain. It provides comprehensive real-time measurements against key performance indicators (KPIs) as they are defined by LTE standards organizations. It enables you to see at a glance where something has gone wrong and then quickly and easily drill down to the root cause of the problem. The measurements enable an impartial and independent assessment of network performance that NEMs can use to demonstrate their equipment works and performs up to expectations. Wireless service providers can use these measurements to determine when, where and what problems exist in the network and how these problems impact service.



LTE Uu Analysis During Handover

## Extensive RF Performance Analysis and Optimization for LTE networks

An interesting aspect of LTE with its collapsed architecture is that all radio resource management functions collapse into the eNodeB and are therefore hidden. The result is that correlation of the air interface (Uu) with network signaling is ever more important for RF Performance Engineering and Optimization tasks. SART for LTE is able to accept data from multiple Uu data sources, including the JDSU industry-proven drive test platform. It can be used to validate key RF performance parameters and how both the network and UE react to the dynamically changing RF environment, especially when considering mobility between LTE and 2G/3G networks. Additionally, it is possible to determine how well each handset works within the LTE network and how different network configurations impact overall performance. This capability extends from the lab, where the focus is on testing and optimizing eNodeB performance, to the fully operational commercial networks needed to maximize the value of your investment in this new LTE infrastructure.

## Why JDSU?

When a network technology is introduced, the adoption lifecycle is immature, and vendors often react to specific customer needs with point solutions that do not integrate well with tools for other phases of the lifecycle. In contrast, JDSU has traditionally built solutions to cover entire technology-adoption lifecycles. Our "whole lifecycle" strategy relies on knowledge acquired during earlier periods of the industry and on collaborations with customers and standards organizations. JDSU has built solutions for each generation of wireless technology and has developed strong collaborative relationships. We took maximum advantage of this experience when adapting the SART platform to LTE. Our engineers applied a huge reservoir of knowledge and worked closely with the leading network equipment manufacturers and service providers to build a solution that meets all the measurement challenges from the lab through trials to commercial deployment. SART for LTE is one more excellent example of JDSU's traditional multi-phase design philosophy.

For more information visit [www.jdsu.com/test](http://www.jdsu.com/test)



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