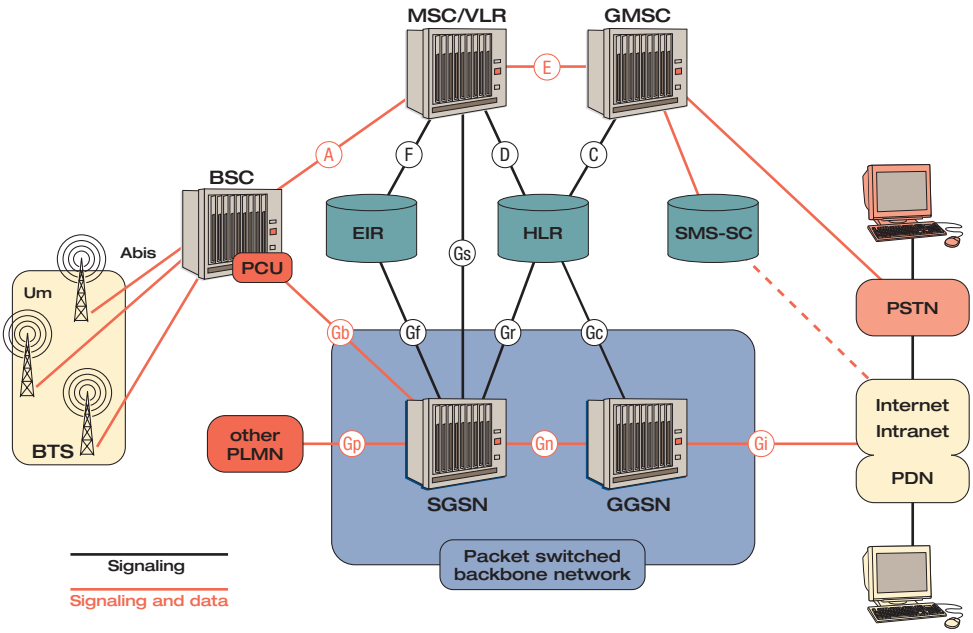
NET-GPRS

Optimize and Manage New General Packet Radio Service (GPRS)

Mastering the GPRS World

NET-GPRS allows mobile network operators to master the challenging evolution from the traditional GSM circuit-switched domain to the new GPRS packet-switched world. With an integrated and powerful suite of network optimization tools, NET-GPRS provides a comprehensive solution for real-time and off-line network troubleshooting and optimization.



GPRS Network Monitoring Architecture

Tektronix®
Enabling Innovation

Network Troubleshooting and Optimization Tools

NET-GPRS applications can be initiated in different locations and at different times, and run simultaneously without complication or interference.

Automatic Deciphering of Gb Interface Signaling Messages

Signaling information travelling on the Gb interface is usually ciphered. Consequently, some critical GPRS procedures, such as PDP Context Activation and Cell Update, are not visible using normal instrumentation. NET-GPRS automatically deciphers signaling messages flowing through the Gb interface and makes their content available to the Protocol Analysis and Procedure Trace applications.

– Thorough Troubleshooting of the Gb Interface

Normal protocol decoders are blind to the content of ciphered signaling messages. Even if ciphering is applied on the Gb interface, NET-GPRS applications gain full access to the content of signaling messages. Thus, troubleshooting of GPRS networks can be carried out under real conditions when ciphering is on.

– Effective Troubleshooting Without Jeopardizing Subscribers' Security

NET-GPRS does not require ciphering to be switched off to perform troubleshooting. While ciphering on the Gb interface remains switched on and guarantees security and privacy to subscribers, the NET-GPRS deciphering engine enables NET-GPRS applications to investigate fully all signaling messages exchanged over the Gb interface.

Protocol Analysis

Network operators are faced with having to analyze new interfaces and protocol layers recently introduced into GPRS networks. With detailed analysis capabilities for all protocol messages flowing through the new Frame Relay and IP-based interfaces—as well as traditional SS7 interfaces—NET-GPRS meets the challenge, enabling network operators to perform all analysis tasks from one central location, in real time and on previously stored data.

GPRS Protocol Analysis covers the Gb, Gr, Gc, Gd, Gs, Gn, Gp and Gi interfaces.

– Operation Costs and Time Reduction

Thanks to NET-GPRS distributed architecture, multi-protocol and multi-interface protocol analysis can be performed network-wide on remote sites from a single, central location. This eliminates the need for technicians to travel to the field to perform operation and maintenance, troubleshooting, and optimization tasks, thus saving time and reducing costs.

– Faster Troubleshooting During Integration Tests

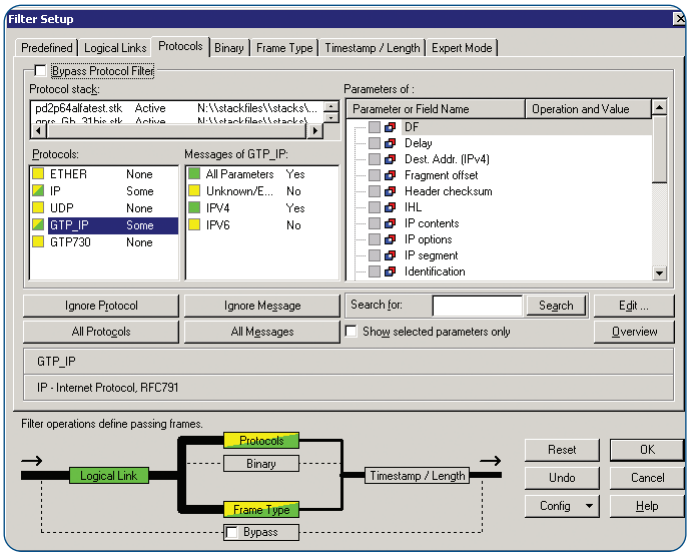
Network operators must be ready to cope with a huge demand of data services. Setting up corporate services and new applications takes time and resources. NET-GPRS Protocol Analysis speeds up troubleshooting operations for integration tests when new services or new network elements are introduced into the network.

– Effective Solutions to Interoperability Problems

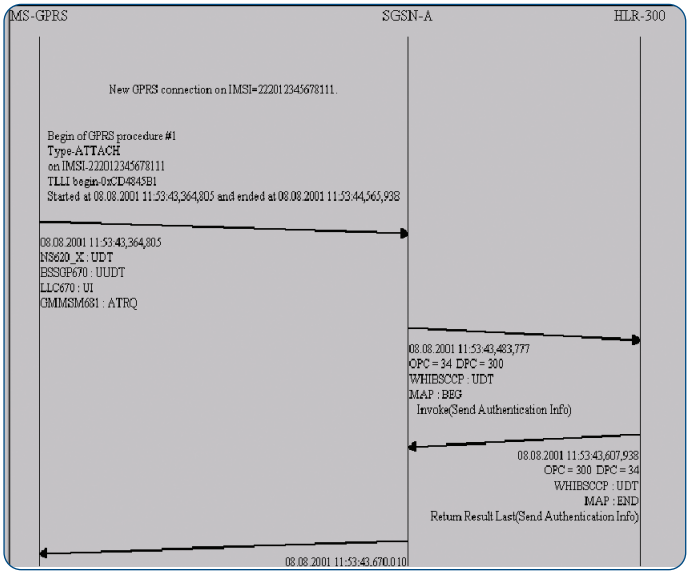
GPRS has introduced new network elements and new interfaces in the traditional GSM architecture. Rolling out a GPRS upgrade to a GSM network requires new skills and expertise on new technologies. NET-GPRS Protocol Analysis is a powerful tool that enables technicians to solve interoperability problems quickly and effectively, thus reducing time for network troubleshooting activities.

– Easier Network Optimization Activities

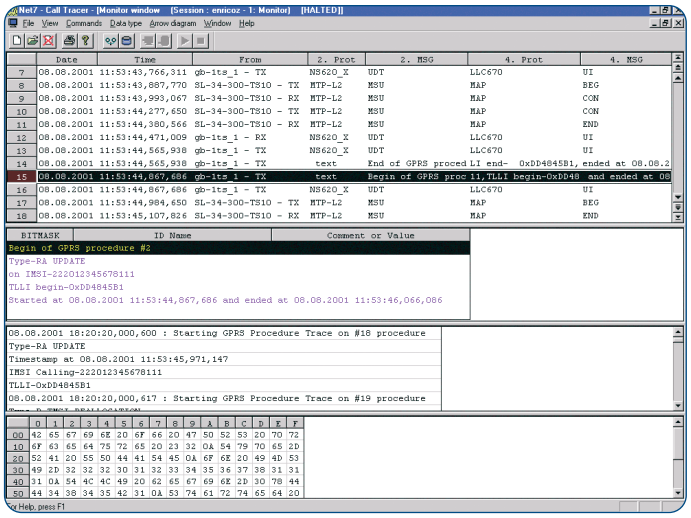
Thanks to the ability of NET-GPRS to collect signaling and data traffic in a central storage device, GPRS Protocol Analysis can be performed on message exchanges that have already taken place within the network. This allows powerful network troubleshooting and optimization, saving time and reducing costs.



▶ **GPRS Protocol Analysis**



▶ **GPRS Procedure Trace – Arrows Diagram**



▶ **GPRS Procedure Trace – Records Display**

Procedure Trace

GPRS procedures (GPRS attach, GPRS location update, Packet Data Protocol context activation, and so on) involve multiple interfaces and protocols—all of which require careful monitoring. NET-GPRS handles this task easily, monitoring multiple interfaces simultaneously. NET-GPRS then uses this data to produce diagrams that help operators locate problems within the protocol message flow of a given procedure. GPRS Procedure Trace allows you to track subscribers' packet-switched data "calls" within the GPRS network. These data calls are made up of GPRS procedures that involve multiple protocols, interfaces and network elements. By triggering on a specific user and selecting a specific time interval, GPRS Procedure Trace shows all the transactions carried out by that subscriber. More than one subscriber can be traced at the same time.

GPRS procedure tracing can be performed either on real-time traffic or on off-line traffic previously recorded by the stream recorder. GPRS Procedure Trace is fully integrated with GSM call trace and allows a combined GSM/GPRS tracking of subscribers' activities. GPRS Procedure Trace covers Gb, Gr, Gn, Gp and Gi interfaces.

– Faster Reaction to Customer Complaints

To gain confidence in the GPRS technology, new subscribers must perceive good availability and performance of the GPRS services offered by network operators. With its ability to track, collect and store the history of subscribers' activities network-wide, NET-GPRS Procedure Trace is the perfect tool to quickly solve customers' problems and improve customer care—reducing churn with greater customer satisfaction.

– Easier Information Correlation

With its distributed, network-wide monitoring approach, NET-GPRS allows you to correlate information coming from different interfaces, contained in different protocol stacks, and related to transactions taking place in different geographical areas of the network. NET-GPRS Procedure Trace thus presents a distinct advantage over the traditional monitoring capabilities offered by switches, network elements and Operation & Maintenance Centers.

– Fast Identification of Root Cause of Problems

Before the introduction of GPRS technology, the telecom and IP worlds had always been considered separate entities. By correlating protocol messages coming from those GPRS interfaces that are more similar to traditional telecom interfaces (e.g., Gb and Gr interfaces) with information coming from the new IP based GPRS interfaces (e.g., Gi interface), NET-GPRS offers a unique, comprehensive view of both areas. The NET-GPRS Procedure Trace applications determine whether inefficiencies are within the operator's GPRS network (e.g., GPRS Attach, GPRS PDP Context Activation, PAP, CHAP) or elsewhere in the external, interconnected IP world (e.g., RADIUS).

– Easier Interpretation of Network Procedures

GPRS has introduced new network elements and new interfaces into the traditional GSM architecture. Rolling out a GPRS upgrade to a GSM network requires new skills and expertise in new technologies. With its Graphical Arrow Diagram, NET-GPRS Procedure Trace allows technicians and non-protocol experts to better understand how messages and procedures are exchanged within the new GPRS networks. Operations and personnel training times are dramatically reduced.

– Faster Troubleshooting at Network Reconfiguration

NET-GPRS Procedure Trace, integrated with the NET-GPRS Protocol Analysis module, speeds up troubleshooting operations whenever network capacity must be extended to accommodate subscriber growth, new services launches and increased traffic—without affecting perceived Quality of Service.

– Immediate GPRS Roaming Troubleshooting

As with GSM, GPRS global roaming is a feature that will also enable GPRS to become a widespread and successful service. NET-GPRS Procedure Trace applications allow you to troubleshoot and optimize GPRS roaming services for in-roamers and out-roamers, as well as to troubleshoot and optimize IP address allocation and DNS related issues—speeding up network operators' ability to bring this important service to market.

GPRS Network Surveillance

Depending on the status of the network or the values of various parameters associated with a specific connection, or both, operators can get a quick indication of a connection's status.

Quick Identification of Critical Conditions

Real-time alarms are available on the monitored streams and on the monitoring equipment. Excessive Frame Relay errors on the Gb interface, degraded PCM signal quality on the Gr interface, or loss of signal on the Gn, Gp and Gi interfaces are identified and presented in real time, with both textual and graphical colored warnings. NET-GPRS also provides self-diagnostic alarms to give a clear indication on the status of the monitoring equipment.

For More Information

For the most up-to-date product information visit our web site at:
www.tektronix.com/Measurement/commtest

You will find NET-7 pages under the Monitoring/Protocol Test section.

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