Wireless

NetHawk



Overview

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www.nethawk.fi

NetHawk EAST[®] GSM Testing

NetHawk EAST® GSM

INTRODUCTION

NetHawk EAST® tests the entire evolution of 2nd and 3rd Generation networks including GSM, GPRS, EDGE and UMTS. Staying on the leading edge of technology advancements is a crucial path for manufacturers and service providers of GSM equipment.

The test platform is designed to test feature verification, simultaneous multiprotocols from a single test case and perform service assurance and validation. The flexibility of the NetHawk EAST® system ensures that your GSM equipment performs to the expectations of high availability in a rapidly converging multitechnology landscape.

To support the needs of today's advanced communications labs; features include functional, conformance, and regression testing, as well as test automation, bulk call load generation, node simulation and emulation.

GSM Capabilities

NetHawk EAST® delivers load and regression testing to all of the key network elements of the Global Systems for Mobile Communications (GSM) network. Each chassis of EAST® can be set up for



Figure 1 – NetHawk EAST® for GSM

multiple users enabling concurrent execution of feature and regression tests.

Individual elements of the GSM system can be isolated for test including the Base Station Controller (BSC), Mobile Switching Center (MSC), Service Control Function (SCF) and location registers including the Home Location Register (HLR) and Visitor Location Register (VLR).

NetHawk EAST® delivers a solution with regression and load test capability for SMS, MAP, ISUP, BSSMAP and ISUP among the many available technologies.

GSM INTERFACES

Several key interfaces can be simulated to test the key equipment in the GSM network. These interfaces include:

> A Interface: connects calls from the BSC in the radio access network to the MSC in the core network

EAST[®] in brief

- 1. Powerful: NetHawk EAST® is scalable for virtually unlimited traffic load.
- 2. Easy to Use: The GUI is simple and effective; standard settings get you going quick.
- 3. Custom Development: Nethawk can support legacy GSM test system implementations that require custom services.
- 4. Flexible: Easy to configure testing scenarios can span multiple protocols and technologies.
- Tier 1 Customer List: NetHawk EAST® has been serving market leading vendors and operators since the 1999 product launch.

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- > B Interface: connects the MSC to the visitor location registry in the VLR
- > C Interface: connects the MSC to the home subscriber registry, HLR
- > D Interface: connection between HLR and VLR
- > E Interface: connects the MSC to the Gateway MSC (GMSC) for onboarding and offboarding non-GSM network calls such as to the PSTN
- > F Interface: link to the Equipment Identity Register, EIR

NetHawk EAST® simulates all of the interfaces described, thus replicating the relevant functions of devices in GSM networks.

MOBILE APPLICATION PART (MAP)

MAP is a protocol that provides for mobile signaling infrastructure in the GSM mobile network. MAP protocol establishes a connection between the MSC and the subscriber HLR.

The HLR dynamically stores the mobile subscriber's location along with up-to-date user account information.

Features of MAP that can be tested with NetHawk EAST® include:

- > Common MAP services
- > Mobility services
- > Operation and maintenance services
- > Call handling services
- > Supplementary services
- > SMS management services

With the CAMEL protocol, users can also test the subscriber trigger data to switching elements via the VLR. The MAP protocol supports applications for GPRS and UMTS networks.



Figure 2 – GSM Testing

GSM EVOLUTION TESTING

NetHawk EAST® offers one of the most comprehensive testing platforms available to the market. Users can test the interoperability of GSM with next generation wireless evolutions for GSM including GPRS and EDGE.

For GPRS applications, users can test a variety of features including:

- SRNS relocation, intra-system handovers, inter-system handovers and inter-system changes
- Simultaneous access to multiple Core Network domains for a single UE
- > Validation of data streams for DCH, RACH, CPCH, FACH, DSCH, USCH and PCH.

GPRS interfaces supported include A, Gb, Gc/Gf/Gr, Gi, Gn as well as circuit domain interfaces Nc, Nb and Mc.

SGSN AND GGSN CORE NETWORK TESTING

The SGSN and GGSN provide enhanced data services and functionality in tandem with the GSM circuit network. NetHawk EAST® can be used to isolate and test the SGSN and GGSN elements in a GPRS Core Network. BSC simulation toward the SGSN is possible through the Gb interface.

Potential testing scenarios for the SGSN and GGSN include:

- Diagnostic testing of the SGSN to determine system stability and internal processing bottlenecks
- Session loading testing of the GGSN with PDP context activations and deactivations
- > SGSN and GGSN capacity testing with a maximum number of subscribers and loading conditions

CONCLUSIONS

NetHawk EAST® is a next generation capable testing tool that bridges multitechnology environments from a single test case. A simple yet powerful GUI provides the environment necessary to achieve performance and interoperability test plan objectives.

Users derive an edge over competitors by using an advanced tool that tests the entire evolution of the GSM network including GPRS, EDGE, W-CDMA/UMTS and China TD-SCDMA.

The best reason to consider NetHawk EAST® for your GSM/GPRS network is that the EAST® platform is designed to meet the needs of the evolving and converged communications market.