### IMS Border Gateway Test Suite

**KEY FEATURES**

- Feature, negative, load, regression, interoperability and scalability testing
- Subscribers and controller emulation in a single application
- Flexible and easy-to-use message and call flow editor
- Negative and proprietary messages and call flow definition
- Standard or proprietary packages
- Controller and gateway failover testing

Large-scale and high-performance solution

- Comprehensive media test capabilities
- Decomposed session border controller and IMS border gateway testing
- Thousands of registrations per second
- Thousands of calls per second (signaling and media)
OVERVIEW

The IMS Border Gateway Test Suite interacts with the SIP subscribers via the media plane and with the controller (SPDF/P-CSCF) with H.248/Megaco protocol based on the TISPAN extensions. In a deployed network, the media, SIP and Megaco signaling are synchronized. Simulating and troubleshooting this environment in a lab to test the IMS border gateway before deployment can be a daunting task if multiple independent test boxes/applications are used to emulate the subscribers and the controller.

The IMS Border Gateway Test Suite was purposed-built to test the border gateway. The application integrates the subscribers and the controller into a single flexible but easy-to-use GUI driven test bed to enable test engineers to easily perform feature, negative, load, regression, interoperability and scalability testing of IMS border gateway functions.

KEY TEST FEATURES

Message and Call Flow Manipulation
› Defines any H.248/Megaco message (valid, invalid and proprietary) using a GUI or text-based editor
› Creates any call flow (valid, invalid and proprietary); manipulates protocol state machine using a ladder diagram
› Defines proprietary variables with rules for incrementing and inserting the variables anywhere into any H.248/Megaco message

Comprehensive Media Test Capabilities
› Negotiates and transmits several codecs simultaneously
› Negotiates one codec but generates another type with higher bandwidth to test the theft of service protection function of the device under test
› Detects in real-time and at line speed whether the device under test is penalizing RTP streams that do not conform to their negotiated codecs/bandwidth
› Verifies path for every established stream to verify whether:
   › Media was detected
   › Media packets were misrouted
   › RTP codec received was not as negotiated
   › ToS/DSCP value for received packets was not as expected
› Measures quality of service (QoS) for delay, loss, inter arrival jitter, mean opinion score (MOS) and perceptual evaluation of speach quality (PESQ) with user-defined thresholds
› Provides records for each call that fails the path verification test or exceed the QoS thresholds
› Up to 15 statistics views for 15 combinations of codec, VLAN and ToS values
› User-defined wave files and packetization intervals
› Tests rogue media
› DTMF in SIP info and RFC 2833
› Messaging using MSRP

Media Statistics
› Analyzes performance for each individual media(codec type
› Measures packet loss, delay, jitter, R-factor, MOS and PESQ
› Validates path of RTP and RTCP packet detecting teardown time, misrouted, unexpected or multiple codec
› RTP DTMF and signaling DTMF sessions active or failed and the reason for failure
› Validates MSRP message transmission and reception
Signaling Statistics
› Summary and detailed signaling statistics per group of endpoints
› Service change and corresponding response messages
› Calls: successful and unsuccessful calls with and without media
› Terminations: active, added, subtracted successful and unsuccessful terminations
› Contexts: active, created and deleted
› Messages: incoming, outgoing and retransmitted
› Errors: incoming, outgoing and error code counts
› TCP connections: active, attempted, successful, unsuccessful and retransmitted

Automation and Troubleshooting
› TCL command line interface
› Built-in Ethereal monitor for each Ethernet port
› Detailed call records for user defined threshold violations

PROTOCOL SPECIFICATIONS

Transport
› TCP, UDP, SCTP

Network
› IPv4, IPv6
› DHCP

MSRP
› RFC 4975
› H.248.69

H.248/Megaco
› ITU-T H.248.1 v3
› ETSI ES 283 018 v.1.1.1
› ETSI TS 102 333 v.1.1.2

RTP/RTCP
› RFC 1889, RFC 1890, RFC 2190, RFC 3388, RFC 3551, RFC 3267

Audio/Video
› ITU-T G.711 (PCMU, PCMA)
› ITU-T G.721
› ITU-T G.722
› ITU-T G.723
› ITU-T G.726
› ITU-T G.728
› ITU-T G.729
› AMR
› AMR-WB
› GSM-EFR, GSM-FR, GSM-HR
› EVRC, EVRC-B
› ILBC
› H.264
› H.263

DTMF
› RFC 2833, H.248 notify

Voice and Video Quality Analysis
› ITU-T G.107 E-model
› ITU-T P.800.1 mean opinion score (MOS) terminology
› ITU-T rec. P.862 (PESQ)
ORDERING INFORMATION

For ordering information, please contact isales@EXFO.com