

Spectra2 XL3

High Performance Signaling and Media Test Solution for EPC and IMS

HIGHLIGHTS

Spectra2 XL3 platform simplifies the validation of these factors by providing:

- High performance diameter testing with thousands of TPS
 - High performance media testing with thousands of media calls
 - High performance multi- protocol scenarios
 - Mass subscriber simulation with abstract access network
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Verify Multi-Dimensional Network Performance and Deliver Services with Confidence

Performance Testing is the Only Way to Avoid Signaling Storms and Service QoE

Performance is one of the key factors to ensure end-to-end LTE network stability. Subscriber growth and smart device evolution signaling traffic in the operator network is skyrocketing, causing unexpected signaling storms. These signaling storms not only impact the signaling network composed of diameter and SIP, but also disrupt the media flows as a result of signaling delays. To mitigate the risk, the XL3 platform provides a comprehensive test platform to validate the network from both signaling and media performance perspectives.

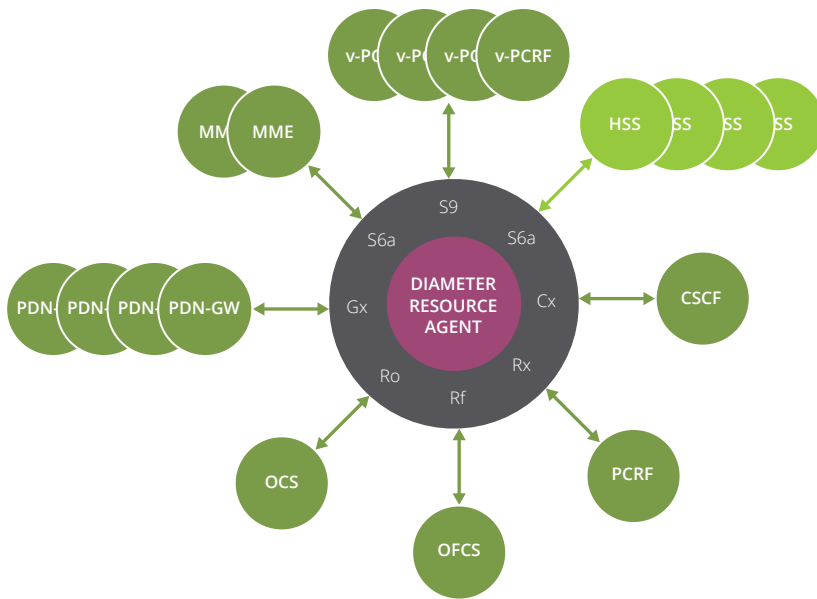
There are three important aspects to LTE network performance testing – Diameter TPS, Media/ RTP simultaneous calls and Cumulative media QoE. These factors are interrelated and often adjusted to achieve the best possible performance from the network.

Targeted Test Domains

Spectra2 XL3 is powered by advanced signaling and media generation capabilities that enable high performance testing of protocols like SIP, diameter, TCAP and RTP. This holistic approach to the performance testing helps test and tune the following network nodes:

- Diameter Signaling Controller
- Diameter Routing Agent
- Home Subscriber Server
- Mobility Management Entity
- Policy Server
- PDN Gateway
- Charging Systems
- Call Server Control Function
- Media Control Servers
- Media Gateways
- Session Border Controller
- IMS Application Server





Design

Benchmark the vendors and select the best one



Roll Out

Decrease deployment time and secure ATP



In Service

Reproduce network failure and reduce down time

Figure 1: Diameter Resource Agent Performance Validation with Spectra2.

Typical Applications and Use Cases

DSC/DRA/DRF/HSS/PCRF Load Testing

There are extraordinary performance requirements on diameter routers as they interconnect various nodes in EPC and IMS. Current performance requirements are 300K-500K TPS per DRA and 80K-300K TPS on HSS and PCRF nodes. As Spectra2 can simulate multiple interfaces, a single XL3 chassis can fulfill this capacity test requirement.

- Multi-node simulation
- Mixed interface scenarios
- Multi-homing scenarios
- Traffic correlation testing
- Inter DRA connectivity
- DRA Relay/SLF routing
- Per port TPS engineering
- Average response time testing
- Open transaction testing
- MME pool testing
- Base conformance testing

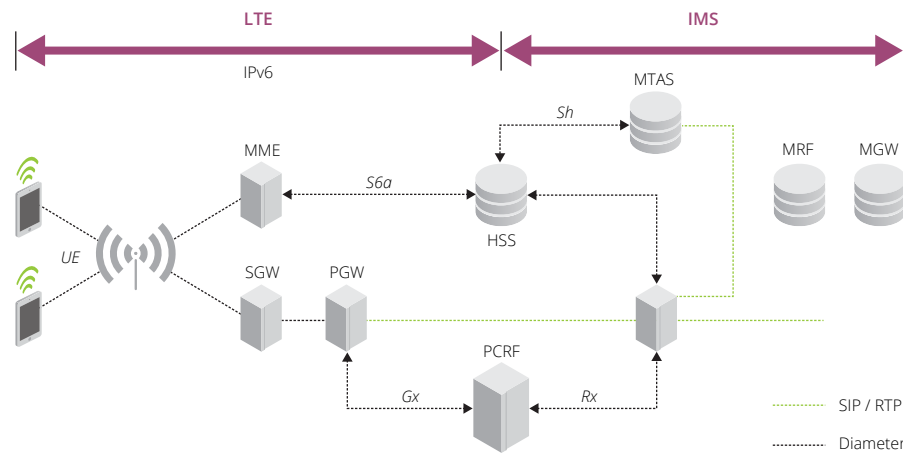


Figure 2: Diameter Policy Validation in the IMS and LTE Core.

Typical Application and Use Cases

Media Load Testing

As VoLTE is adopted as one of the primary LTE services, operators need to connect to an IMS network for voice and video services. This creates a test requirement for media elements in the packet core and IMS core for maximum simultaneous RTP calls. AMR-WB is the typical CODEC used for voice communication. SIP and diameter control the signaling among multiple nodes in the network.

Spectra2 XL3's capability to control multiple protocols in a single scenario along with the stateful media sessions at a high performance enables customers to simulate nodes quickly, as needed, to test and measure customer QoS, making it the ideal performance test tool of choice for EPC and IMS.

Chassis Specifications

Network Connectivity	Combination of 1G and 10G ports Up to 12xGigE ports (SFP and RJ-45) Up to 8x10GigE ports (SFP)
Storage	4GB memory and hot swappable 500GB RAID-1 storage
Processor	4-socket system with 4 Intel Sandy bridge processors
Rack Unit	2 Rack Unit (2RU)
Dimensions	3.5 in (87 mm) Height 19 in (482 mm) Width 30 in (741 mm) Depth
Mounts	Dell R820 rack mount server
Power Rating (AC)	Hot-plug, platinum efficiency 750-1100W, AC power supplies
Diameter Testing	Policy Interfaces – Rx, Gx, S9, Gxa/Gxb/Gxc HSS Interfaces – Cx/Dx, Sh/Dh, S6a/S6d, Zh/Dz Charging Interfaces – Ro/Gy, Rf/Gz, Sy EIR Interfaces – S13/S13* AAA Interfaces – S6b*, STa*, SWm NGN Interfaces – Rq, Gq/Gq', E2/E4 Location Interfaces – SLg / SLh Simulators – PCRf, HSS, OCS, PCEF, SLF, CSCF*, AAA*, IMS-AS*, MSS*
VoIP/TDM Testing	Signaling Protocols – SIP, diameter, H.323, Megaco, XCAP, RTSP, HTTP and TCAP Signaling Transports – IP, SIGTRAN (M2PA, M3UA) IP Versions – IPv4 and IPv6
Media Testing	Capabilities – Inject, Detect, DTMF and Capture Codecs – G.711, G.723, G.726, G.729, AMR WB/NB, EVRC, H.263/H.263+, H.264, T.38 QoS – Active and Passive, Audio and Video, PESQ, MOS
WebRTC Testing	WebRTC Client Simulation Protocols – HTTP(S), JSON, SDES and DTLS SRTP, ICE, STUN, TURN Codecs – All RTP based codecs with Inject and Capture
Diameter Performance Testing	450K* TPS
Media Testing	700K* Simultaneous AMR-WB RTP Calls per XL3 Chassis 400K* Simultaneous G.711 RTP Calls per XL3 Chassis NOTE * - benchmarks based on fully populated XL3 chassis with all processors enabled.
Applications	Automated Test Case Generation from Wireshark Import API driven real-world data import, Non-standard RTP Codec support Simultaneous Multi-protocol traffic generation Simultaneous media codec generation



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