

Spectra2

Communications Testing

HIGHLIGHTS

- 5G, IMS, VoIP, PSTN and WebRTC gateway testing capability
- Floating licenses
- Emulate millions of user agents
- REST API for integration into virtual and cloud-based test labs
- RTP Media with quality metrics
- Deploy on Virtual Machine or Commercial Off the Shelf Server
- Multi-protocol testing
- Schedule automated test execution
- SNMP Alarming
- PCAP import for automated test case creation
- Run-time message manipulation
- Built-in protocol message libraries
- Built-in conformance test suites
- Configurable automated message responses
- User-defined event counters and timers
- Laptop portability
- Multi-user access
- T1/E1 interface options

Product Overview

NETSCOUT's Spectra2 is designed and optimized for the telecommunications test and diagnostics market. Spectra2 deployments offer maximum flexibility – from the server or VM the customer wants to deploy, to their choice of network interfaces – Spectra2 puts the control in the hands of the customer.

Spectra2 supports five basic pillars of network testing:

1. **Functional Testing** – for the purpose of proving the functions and features of a device, application, or network function.
2. **Load / Stress / Performance Testing** – to validate network capacity and performance.
3. **Negative Testing** – for the purpose of ensuring that the network can survive protocol errors or malicious attacks.
4. **Media Quality Assurance** – to validate the quality of Audio, Video, and other sources of media.
5. **Automation** – to ensure that testing and regression cycles are as efficient as possible.

Deployment Options

NETSCOUT® offers Spectra2 in multiple configurations to meet the needs of individual customers. You choose the best option based on your specific requirements, and we deliver the highest performance solution in the most cost-effective way. Deployment options include:



Virtual Deployment – Install Spectra2 in your virtual environment to maximize flexibility and elasticity.



Dedicated Server, Software Only Deployment – Install Spectra2 on your own server, for a “Bring Your Own Server” option.



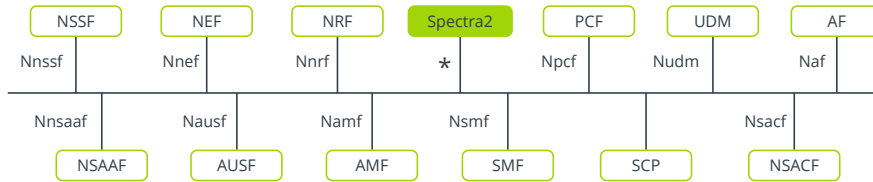
High Performance Deployment – Install Spectra2 on a server of your choice, and add our specialized network adapters to provide optimal flexibility and highest available performance.

5G Core Network Testing

Spectra2's 5G Core Network Toolkit supports comprehensive testing of 5G core network functions and procedures. Using Spectra2, customers can build out their 5G core network efficiently and with confidence. Since the 5G core network architecture represents a complete overhaul from 3G and 4G technology, the initial test effort usually begins with functional testing of an individual network function. From there, more complex procedures and use cases must be tested with varying message content and flows. Spectra2 enables this with features including:

- HTTP/2 with enhanced visualization: Speed debugging and analysis with text-based visualization of complete 5G messages.
- 5G Message Builder: Build 5G messages from 3GPP standard YAML files or from PCAP captures. Messages can be modified to include any combination of headers and content.
- In-Call Database: Support comprehensive procedure testing where context is maintained across multiple network functions.
- Flexible Scripting: Develop test cases to test specific scenarios, including error conditions.

Spectra2 emulates 5G network functions and interacts with other network functions using the 5G Service Based Interface (SBI). Using this approach, Spectra2 supports a wide variety of test scenarios, from a single network service to testing complex procedures involving multiple network functions.



Spectra2 enables you to validate 5G core network functionality in a methodical fashion. Deploying a brand-new architecture for a communication network usually begins with functional testing and branches out from there. Spectra2's automated 5G message generation and flexible scripting interface allows users to test all aspects of a 5G core network including:

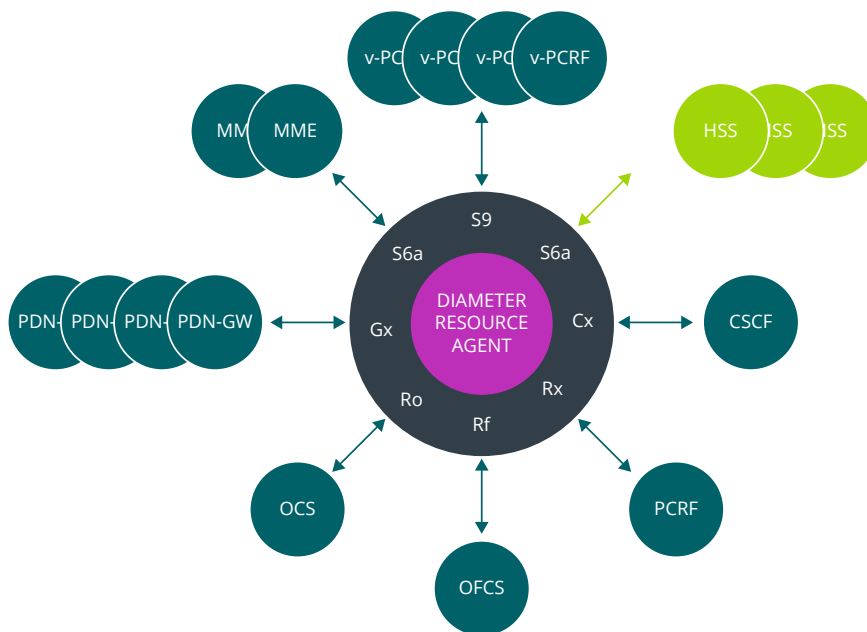
- Functional testing of a network service
- Functional testing of a procedure
- Regression testing
- Multi-vendor interoperability testing
- Replication of vendor-specific message flows
- Vendor bake-offs
- Negative testing
- Turn-up testing
- Recreating scenarios based on problem reports
- New 5G use cases such as network slice selection



IMS/Diameter and Testing

Spectra2 is powered by advanced signaling and media generation capabilities that enable high performance testing of protocols like SIP, Diameter, Megaco, ISUP, TCAP and RTP. This broad coverage of protocols helps you test and tune the following network nodes in the IMS Core:

- Call Server Control Function (CSCF)
- Home Subscriber Server (HSS)
- Diameter Routing Agent (DRA)
- Policy Charging Rules Function (PCRF)
- IMS Application Servers (IMS-AS)
- Media Gateway Control Function (MGCF)
- Media Gateway (MGW)Media Resource Function Controller (MRFC)
- Media Resource Function Processor (MRFP)



VoIP Testing

Spectra2'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 VoIP applications and networks.

Comprehensive testing of Media gateways, transcoders, session border controllers, and other VoIP applications is fast and efficient using Spectra2.

Using an optional Media Accelerator NIC, Spectra2-based load tests can emulate hundreds of thousands of endpoints, using both compressed and uncompressed codecs, and test QoS on each session.

WebRTC Gateway Testing

The Spectra2 WebRTC Test Package replaces the web browser to enable functional, load, and regression testing of WebRTC-based solutions. Scripted test cases can easily adapt to different vendor implementations and targeted use cases. Spectra2 initiates WebRTC sessions that:

- Validate session establishment procedures
- Measure media QoS for voice and video sessions
- Verify chat, multi-chat, and group chat functionality

PSTN Interworking

Spectra2 can verify that IMS and VoIP networks continue to interwork with legacy PSTN networks. Spectra2 supports SS7 TCAP, ISUP, ISDN, SIGTRAN, MEGACO, MGCP, and other protocols to enable extensive testing of signaling gateways, media gateways, and media gateway controllers. An optional TDM interface card with T1/E1 support extends the test reach to enable full end-to-end test scenarios.

Spectra2 Packaging

NETSCOUT makes it easy to configure and deploy Spectra2 to meet your specific test requirements. Simply choose the Base System that meets your capacity requirements and add the Test Packages to match your testing needs. Using Spectra2's Floating License Manager, you can deploy a Spectra2 instance on any platform - physical or virtual, Windows or Linux - and use only the capacity and Test Packages you need.

Base Systems:			
	Entry Level	Workgroup	Full Capacity
Active users	4	8	16
Calls per second	1,000	10,000	unlimited
Media streams	1,000	25,000	unlimited
5G scripts per second	10	5,000	unlimited

Testing Add-ons:	
Name	Test Target
5G Core Network Toolkit	5G core network services and procedures
IP Communications Testing	VoIP applications and devices
IMS Core Testing	IP Multimedia Subsystem networks
Media Testing	Applications and devices that process RTP-based media
WebRTC Testing	WebRTC gateways
PSTN Testing	PSTN interworking applications and gateways

Floating Licenses

An optional Floating License Manager (FLM) helps maximize Spectra2 usage by allowing users to "check out" licenses at the software package level and install them on COTS servers or VM's. A floating license includes one or more base software systems (Entry Level, Workgroup, or Full Capacity) and one or more add-ons (5G Core Testing, IMS core Testing, IP Communications Testing, Media Testing, WebRTC Testing, PSTN Testing). Both base systems and test add-ons can be shared independently.

Scripting Capability

- Configurable automated message responses
- Auto-population of message parameters
- Scripting flexibility: IF THEN/ELSE conditional branching capabilities, procedure definition / procedure calls, user-defined event counters and timers
- Get/Put parameter management for customization of incoming and outgoing messages in real-time
- Test multiple protocols concurrently in a single test model
- Customizable traffic mixes and traffic flows

High Performance NIC

Spectra2 offers the best of both worlds. By combining Spectra2 Media Accelerator NICs with a customer-supplied COTS server, the customer purchases Spectra2 software and one or more Media Accelerator NICs from NETSCOUT and uses their existing channel to acquire servers. Additionally, Spectra2 licenses can be shared (floated) between high performance test solutions that utilize Media Accelerator NICs and cloud-based deployments using virtual interfaces.



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