

Nexus8630 Protocol Analyzer

Investigate Service Quality and Network issues



Investigate QoS issues in Radio Access, 5G/LTE Core, IMS and NGN Networks

The Nexus8630 product line of protocol analyzers provides a great diversity of analysis applications. The various (portable, rack mounted, server based and laptop based) hardware platforms can analyze a variety of network interfaces including T1/E1/ATM, STM-1 OC3 Optical, and 1 GigE / 10 GigE Ethernet (Optical and Electrical), enabling the monitoring and troubleshooting of access networks, correlating Control Plane and User Plane for fast results, including (ISDN/PRI, SS7), mobile networks (GSM, GPRS, UMTS, HSPA+, CDMA), NGN and LTE networks.

Cross Technology Call Trace Correlation

For troubleshooting LTE interworking with legacy networks, as well as maintaining quality of service in converged networks, cross-technology call trace analysis capability is indispensable. The Nexus8630 protocol Analyzer allows instant correlation of message flows over multiple interfaces from different types of access and core technologies.

Nexus8630 offers sophisticated and comprehensive network element monitoring with analyzing capabilities on respective interfaces. It monitors and decodes full call trace and protocol details, providing the best cost-effective means to secure highest quality of service for your most important subscribers.

Nexus8630 is a portable solution with alternative rack mounted server systems, benefiting and tailored to:

- Engineering, planning, operation and maintenance
- Integration test labs
- Professional service teams

Instant Message Flow Correlation, Analysis & Depiction

It is possible to schedule monitoring of activate test scenarios for recurring problems, as well as permanently deploying Nexus8630 as a multi-user centralized system, continuously providing network-wide KPI analytics and protocol analysis functions 24x7. When service degradation occurs, investigating specific subscriber activities with Nexus8630 provides real-time as well as historic data for message correlation and flow diagrams, including Iub/Gb/LTE deciphering.

KEY FEATURES

- Troubleshooting all mobile technologies, 2G/3G, LTE and fixed networks
- Investigate VoLTE voice quality issues - SIP/RTP QoS MOS analysis
- Detailed subscriber activity analysis with CDR creation
- Fully correlated cross-technology interface call traces and flow diagrams
- Protocol Analysis of network activity – Control and User plane
- Optimize network settings using flexible KPI counter analytics
- IoT support to investigate M2M communications and related issues
- CUPS verification to ensure 4.5G to 5G transition

Transparent Mobile Subscriber Behavior

Nexus8630 enables any mobile subscriber activity to be traced through monitored interfaces of any Radio Access Technology (RAT) network. In response to a problem report, Nexus8630 immediately provides message correlation of the captured network protocol data covering the time the problem occurred.

With just one mouse click, Nexus8630 displays graphical call flow ladder diagrams, providing excellent multi-technology call trace analysis and visualization functionality.

Customer transaction Call Flow Analysis

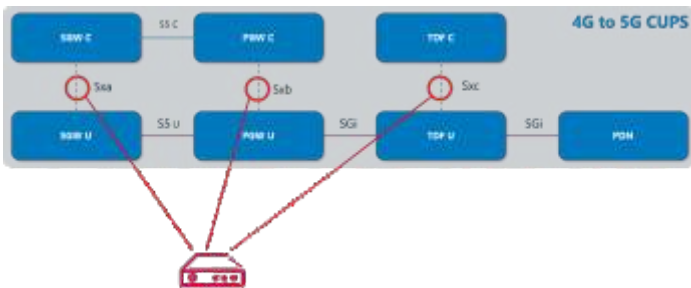
Nexus8630 provides on-line monitoring of call progress through your network and marks the faulty message of a problem in an instant. Where simultaneous testing is required in LTE, UMTS, GPRS, GSM, SS7 and NGN converged networks, Nexus8630 can accommodate all analysis needs — including err or colorcoding.



Cost-Effective Service Assurance Made Easy

Ensuring proper CUPS implementation for 5G

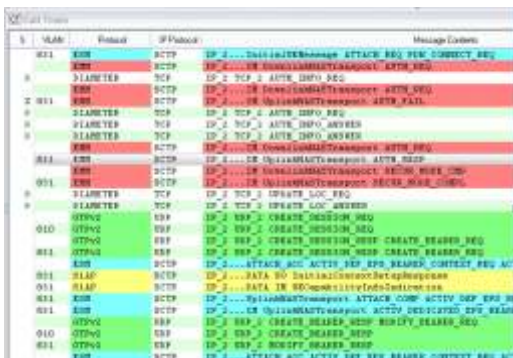
On the way to 5G the separation of control plane and userplane plays an essential role. It allows to handle control plane related things centralized and user plane related like e.g. connected car closer to the application where it is needed to reduce latency. One approach on the way to 5G is to use 4G core networks and separate the controlplane and userplane functions into separate gateways. Surveilling the newly introduced interfaces between these now separated gateways becomes therefore mandatory to ensure a smooth transition to 5G



Service Assurance - VoLTE and LTE Data QoS

Nexus8630 supports all protocol decodes used and deciphering within LTE networks to provide correlation over different interfaces (signaling and user plane). The Nexus8630 product line enables the user to investigate:

- Interworking issues with 3G and 2G networks
- Packet loss and latency at SGW and PGW
- Handover issues and Fallback Scenarios
- LTE signaling and payload KPIs
- Payload related issues over several interfaces



Subscriber details Masking and Masked Data export

Regulations regarding compliance to data privacy rules are now covered by the Nexus8630 product line with the feature of masking subscriber details in GUIs, as well as masking customer details when exporting data. The following identities can be masked:

- MSISDN
- IMSI
- IMEI, IMEISV
- Called / Calling Party Numbers
- Redirecting / Redirection Numbers

Nexus8630 - Put an End to Unresolved Call Drops

With the basic KPI sets, call drop investigations are fast and accurate. KPIs are easily customized to focus on your specific call identification needs. Nexus8630 provides the answers to network problems and detects imperfect RAN settings quickly. Extensive KPI sets are available for the following technologies:

- UMTS
- GSM
- GSM-R / ETCS
- GPRS
- ISUP
- NGN VoIP
- SIP/RTP MOS
- LTE / VoLTE

Summary - Nexus8630 Key Benefits

- Troubleshoot LTE protocols on all kind of LTE interfaces.
- Multi-protocol / multi-interface call trace capability
- Full call trace analysis — online & historical
 - VoIP to ISUP call analysis
 - Multi-technology & multi-vendor interfaces
- On-line view of ongoing calls
- Audio & video stream payload analysis
- Replay of audio and video conversation
- Unmatched flexibility for analytical KPI counters and filters
- Self defining dynamic counters
- Easy definition of customer specific KPIs
- KPIs stored in MIB for SNMP polling functionality
- Wireshark Import / Export
- Wide range of supported protocol decodes
- Instant message flow correlation over different interfaces and technologies
- Detailed call flow depiction with ladder diagrams
- Simple, easy to use and attractive GUI features
- 24x7 surveillance and KPI statistics capabilities
- Quick and simple installation through auto-configuration of links and interfaces
- Quick Drill-down from any application to the related call
- Alerting via SNMP based on user definable thresholds
- Cost-effective solution for maintaining quality of service in 2G, 3G and LTE Mobile Networks; NGN and fixed networks

Hardware Software Flexibility

Nexus8630 PCI Express based platforms

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Including integrated keyboard and 17" display

- Intel Quad Core 3,4 GHz CPU, 32 GB RAM (up to 64 GB possible)
- 1x500 GB SSD System Drive, 2x1 TB 7.2k rpm HDD for Data Storage
- Dual Gigabit Ethernet Interface
- 6 x USB Interfaces
- 17" Monitor
- 2 interface cards per system
- OS Windows 8.1
- Weight 12 kg

Nexus8630 Server based system , standard config

System for heavy load IP based traffic and protocol analysis specially focusing LTE applications.

- HP ProLiant DL380 Gen10 – 8 SFF
- Intel Core E5-2640v3, 2,6 GHz 8 core CPUs with 32 GB RAM
- Second CPU optional
- 2x 300 GB System Drive
- 6 x 600 GB HDD for Data Storage,
- Up to 3 interface cards per CPU
- OS Windows Server 2012

PCI Express based INTERFACE CARDS

Gigabit Ethernet Interface Cards

- 4 port electrical Gigabit Ethernet card (4 x RJ45)
- 4 port optical Gigabit Ethernet card (4 x SFP), SM 1310 nm
- 4 port optical Gigabit Ethernet card (4 x SFP), MM 850 nm
- 2 port 10 Gig Ethernet card – optical (2 x SFP+), SM 1310 nm
- 2 port 10 Gig Ethernet card – optical (2 x SFP+), MM 850 nm

Legacy Interface Converter

E1/T1 to IP converter

- 19" chassis, 482mmx144mmx42mm, 3 kg
- Up to 32 E1 or T1 links supported
- Connection to the Nexus8630 via LAN port

STM-1 to IP converter

- 19" chassis, 482mmx144mmx42mm, 3 kg
- Up to 3 STM-1 links supported
- Connection to the Nexus8630 via LAN port



Nexus8630 SW only solutions

Nexus8630 Offline Analyzer

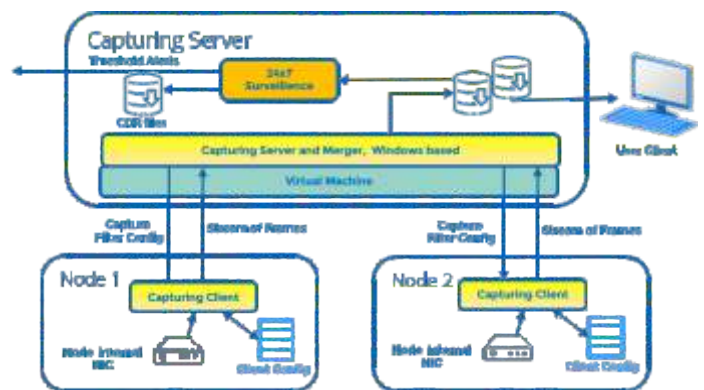
Nexus8630 Offline Analyzer

- Protocol analyzer and statistics functionality to investigate traces recorded with other Nexus systems or PCAP traces.
- Full decoding, correlation and statistics functionality.
- Import / Export functionality

Distributed SW Capturing Clients for IP

Solution applicable for small operators or labs

- Distributes SW clients to capture IP based traffic directly from network elements
- Flexible configuration of capture clients
- Server application for stream merging
- Realtime analysis and surveillance



Nexus8630 Decode Packages

- GSM Decodes Package
- Manufacturer Specific RSL/O&M/PCU Decodes
- CS Core Network Decode Package (SS7, IN)
- GPRS Decode Package
- Access Network Decode Package (V5, ISDN)
- SIGTRAN Decode Package
- CDMA / CDMA2000 Decode Package
- Payload Decodes
- Deciphering Package (Gb, Iub, S1)
- NGN-IP / VoIP
- SIP/RTP QoS (RTP MOS analysis) Package
- UMTS Decode Package
- LTE Decode Package incl. IoT Decodes
- Subscriber Masking Application SW