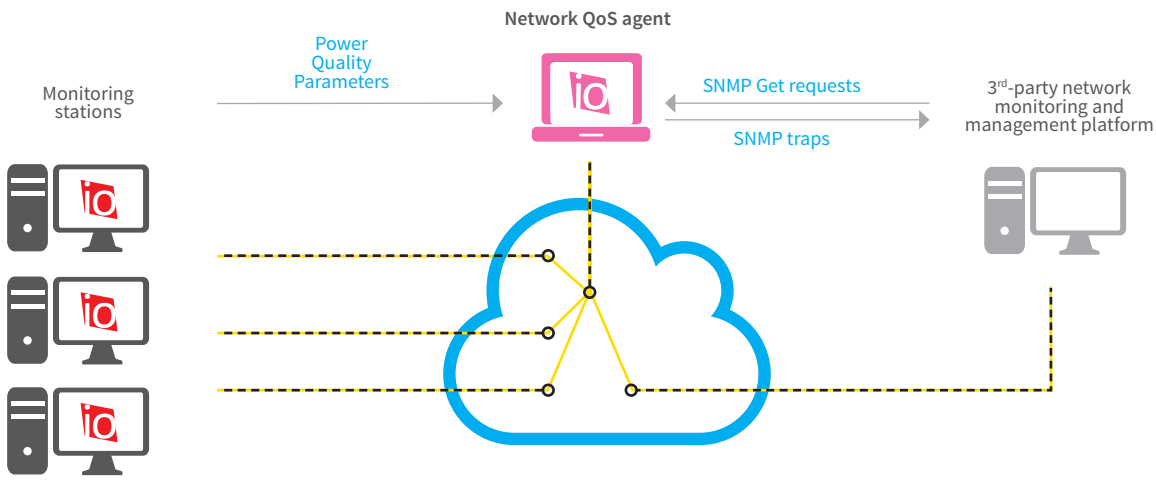
DECODIO QoS

Decodio QoS is a new approach for automatic PMR network monitoring, based on Decodio's RED, BLUE and PINK software components. Decodio QoS allows continuous monitoring of large-scale communication networks using multiple measurement sites, and is ideally suited for a wide range of applications such as quality assurance, automatic interference detection and network capacity troubleshooting. It operates over the air interface, independently from the network.

The ability to send notifications based on various quality metrics allows fast response to network failures and ensures optimal service uptime. Decodio works hand-in-hand with its customers in order to configure the best QoS solution.



Network monitoring architecture

A SAFETY NET FOR YOUR NETWORK

Mission-critical communication networks are subject to various potential threats which can affect their reliability, such as interferences, intentional jamming, hardware failure, or configuration issues.

Decodio QoS is able to automatically detect anomalies on the air interface using data provided by multiple acquisition stations. A QoS agent ensures that the network activity agrees with a list of user-defined rules. Whenever a rule is broken, notifications are sent to the network management infrastructure in the form of SNMP Traps. In addition, the system can reply to SNMP Get requests and communicate information about the network's health.

CUSTOM NOTIFICATION RULES

A wide range of parameters can be used to define notification rules, from the physical layer to the protocol layer.

Physical and transport layer parameters include signal power level, frame error rate and foreign signal detection. At the protocol layer, all network-specific parameters supported by Decodio NET are available. All parameters can be used to create rules for both downlink and uplink channels.

For example, a possible configuration could make the system signal all emissions of an uplink channel that do not match a given network code, or monitor the signal level changes of an indoor repeater.

INTERFERENCE DETECTION

Decodio QoS can be used to effectively detect interferences and jamming in both uplink and downlink channels.

Acquisition stations located in proximity to a base station can be used to automatically detect unwanted emissions or jamming in the uplink channels, while scattered stations can be used to monitor the quality of the base station broadcasts.

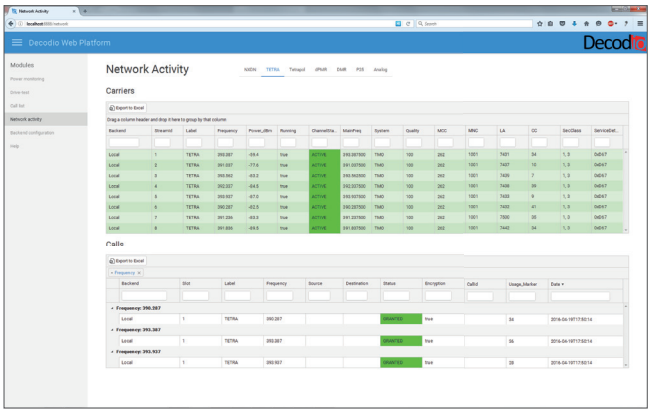
TIMING ANALYSIS FOR SIMULTANEOUS BROADCAST

Decodio QoS can be used to monitor the synchronization of simultaneously broadcasting stations. Comparison of the emission time of each protocol data unit (PDU) measured with GPS-disciplined oscillators allows for precise synchronization monitoring.

DISTRIBUTED ARCHITECTURE AND SEAMLESS INTEGRATION

Decodio QoS supports fully distributed deployment scenarios. Thanks to the system's reduced bandwidth requirements, large numbers of small acquisition sensors can be interconnected for efficient monitoring of large-scale communication networks. Where necessary Decodio's own VPN-architecture allows a connection based on conventional 3G/4G networks.

The solution can be easily integrated into an existing infrastructure, and custom engineering and integration work is offered by Decodio for complex deployments and customized setups.



Network activity visualization

DECODIO BLUE OPTION

Decodio QoS is compatible with Decodio BLUE for browser-based logging and real-time visualization. In particular, this enables the network activity as well as the status of the various acquisition stations to be monitored in real-time in a web browser.

HIGHLIGHTS

- Fully automatic operation
- Large network monitoring
- Simultaneous monitoring of multiple protocols
- Seamless integration into existing infrastructures
- Custom notification rules

APPLICATIONS

- Network usage and health monitoring
- Failure and interference detection
- Automatic statistical analysis

TECHNICAL DATA

Decodio software component:	RED, PINK (BLUE available as option)
Frequency range	9 kHz – 6 GHz
Bandwidth	Up to 27 MHz in portable setups and 80 MHz in fixed setups
Communication mechanisms	SNMP Traps and Get requests
Supported SNMP versions	SNMPv1, SNMPv2c, SNMPv3

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