

# vo:pfuture

RELEASE NEWS

2020

## Qrystal

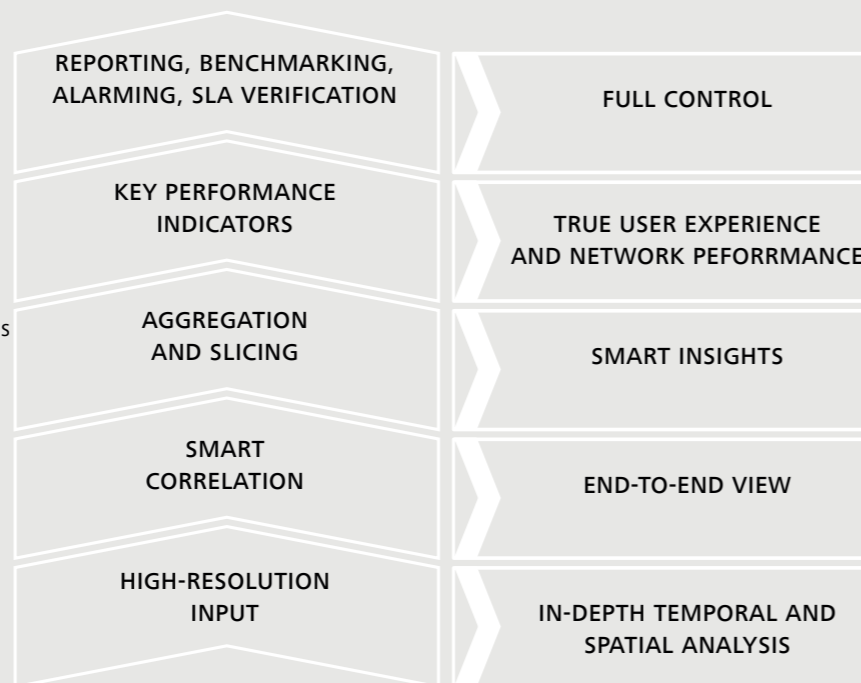


- Full visibility: user experience, eNBs, cells
- Fully integrated: Qrystal Intelligence

This release overview covers the main differences between Qystal 6 and the GA version of Qystal 7. For full details see Release Notes (VPF300-60A\_Qystal\_Release\_Notes)

### VOIPFUTURE'S VERTICAL SOLUTION BENEFITS

- Network & service monitoring
- Signaling KPIs (including RFC 6076)
- Timeslice media KPIs
- CD-rill-through to individual call
- Statistics for sites, trunks, originations and destinations
- Performance data for all entities of interest
- Multi-level correlation to link media and signaling
- Data from multiple probes to create end-to-end view
- Full SIP and RTP traffic
- 5s timeslicing (400 metrics/slice)
- Automatic detection of SIP/RTP issues



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### Improved VoLTE & VoWiFi Support

#### LTE Location Information

- Cell-level granularity on LTE trunk statistics
- Mobile location data from the LTE S11 interface and SIP PANI header

#### VoWiFi

- S2a (PGW to trusted WLAN)
- S2b (PGW to untrusted WLAN)

#### SRVCC detection

- Via the SIP P-Charge-Info header (transfer, success, fallback)
- Available on calls and xdrs

### Enhanced User Interface

#### Dashboards

- Sharable
- Choose between multiple dashboards
- Quicker, due to asynchronous update in background

#### Call Flow Diagram

- Exportable as HTML with working menu, tooltips and pop-ups
- Color indication for quality of media streams

### New KPIs and Extended Support

#### New Key Performance Indicators

- Dropped Call Ratio (DCR)
- Truncated Call Ratio (TCR)
- Network Efficiency Ratio (NER) (customizable SEER)

#### New Signaling Indicators, i.e.

- Call drops
- LTE/4G indicators
- Wifi PANI indicator

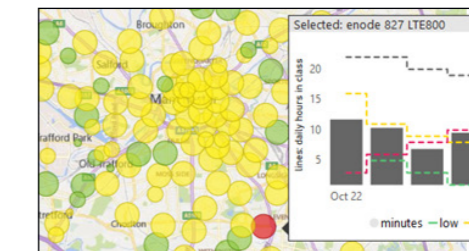
#### AWS Deployments

- AWS support
- vxlan monitoring



### Qystal Intelligence Integration

Qystal Intelligence analyzes quality data and provides high-level service reporting about the performance of the operator's network. Qystal 7 allows direct access from the Manager GUI to Qystal Intelligence.



# VIRTUAL TEST DRIVE: VoLTE SERVICE QUALITY DOWN TO SINGLE CELLS

AS IF YOU WERE DOING AN ONGOING TEST DRIVE - ONLY WITHOUT THE ONGOING TEST DRIVE COSTS

Qrystal 7 collects location information from the LTE S11 interface and SIP PANI header and shows the gathered information on all Streams, xDRs and Calls pages.

- In addition, it is offering additional configurable columns for LTE MCC, MNC, TAC, eNB ID and Cell ID , which are all shown on the Stream Summary page VoLTE/VoWiFi tabulator.
- There, the Stream Details tabulator provides an LTE section summarizing LTE Trunk-, Tunnel, MCC, MNC, eNodeB, Cell (sector) and TAC information.



The granularity is up to you: From the network's service quality level you can go down to eNB or even cell quality

## MOBILE LOCATION INFORMATION

- Mobile Country Code (MCC)
- Mobile Network Code (MNC)
- Tracking Area Code (LTE: TAC) or Location Area Code (UMTS: LAC)
- E-UTRAN Node B Identification (eNB ID)
- Cell ID (Sector ID)

## LTE TRUNK STATISTICS WITH CELL-ID GRANULARITY

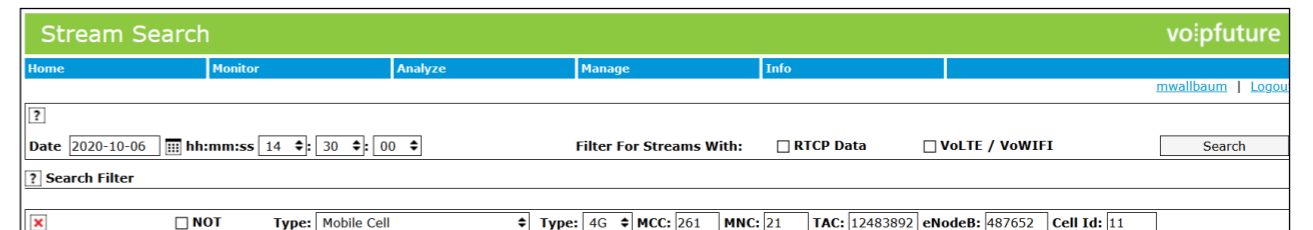
Qrystal 7 allows you to enable cell granularity for individual LTE Trunk statistics.

For SGW/eNodeB trunks with enabled cell granularity, Qrystal Manager will automatically learn the individual served cell-ids and will create multiple VoLTE statistic records for the individual served cells instead of a single record for the whole SGW/eNodeB trunk.

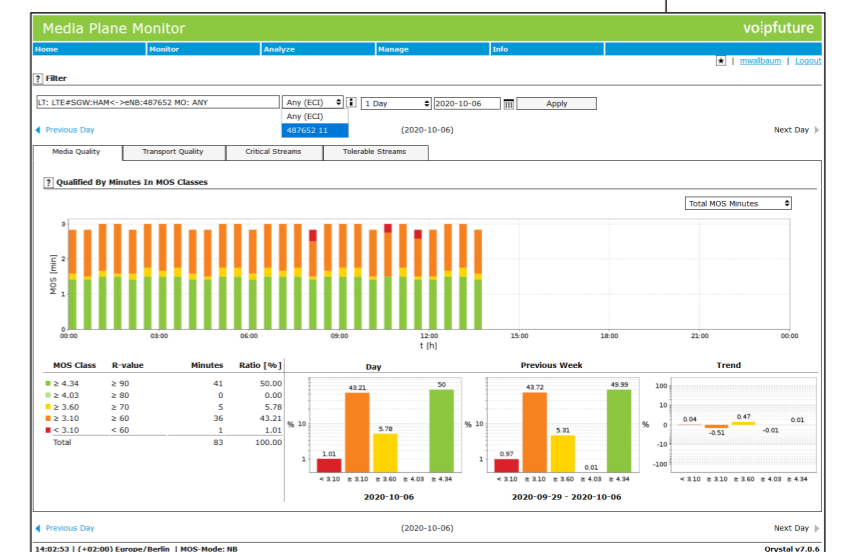
## 4G VoWiFi SUPPORT

Qrystal 7 adds monitoring support for the VoWiFi S2a interface (PGW to trusted WLAN) and S2b interface (PGW to untrusted WLAN).

The VoLTE/VoWiFi checkboxes on the Call- and xDR Search pages now find VoWiFi records monitored on S2a/S2b and VoLTE records monitored on S1-U.



The Stream Search allows you to search for the LTE Mobile Cell information that has been monitored on the S11 interface



# ENHANCED USER INTERFACE

In Qrystal 7 you can press the "Export as HTML" button to export the Call Flow Diagram page into a single HTML file.

You can use the Devices menu to hide your network internals from the export, in case you share the diagram with external users, like customers or suppliers.

All information in tooltips and popups, e.g. SIP messages and RTP quality, is accessible in the exported HTML.

The screenshot shows the 'Call Flow Diagram' interface. On the left, a sequence of SIP messages is shown with timestamps: [S-1] INVITE/SDP, [S-2] 180 RINGING, [S-3] 200 OK/SDP, [S-4] ACK, [S-5] BYE, and [S-6] 200 OK. On the right, an 'RTP starts' popup window displays various quality metrics for SSRC 1704370910. The metrics include: Min. R-Factor (LQE) 60, Avg. R-Factor (LQE) 63, Min. MOS 3.10, Avg. MOS 3.25, # Packets received 4326, # Packets lost 119, Packet Loss Ratio [%] 2.68, Max. Jitter [ms] 4, Avg. Jitter [ms] 1, Good Minute Ratio 0, Good Stream (yellow dot), CMR [%] 89.47, Transport Quality (red dot), Fax Compatible Stream (grey dot), FPI Error (grey dot), QUIT (green dot), and Used DSCP Classes EF. Buttons for 'Close', 'Copy', and 'Stream Details' are at the bottom of the popup.

## QRYSTAL 7 UI ENHANCEMENTS

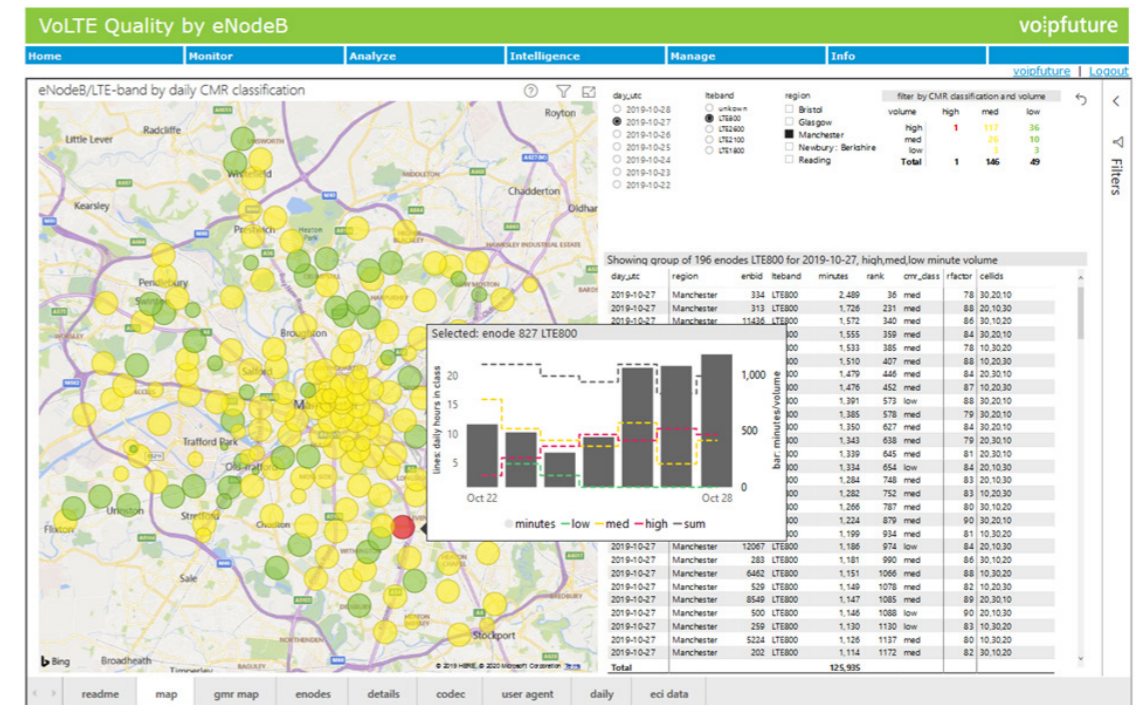
- Starting with Qrystal 7 users can create multiple own dashboards and choose a dashboard, to be shown as Home menu.
- Accounts with the respective permission, can share their dashboards with all other accounts.
- All dashboards in use by any active account are refreshing their information in the background with a 1-minute interval and the Home pages of individual accounts just display the already gathered information.
- The benefit of asynchronous dashboards: Home pages are more responsive and avoid many redundant information retrievals, especially when shared dashboards are in use by multiple accounts.

The screenshot shows the 'Edit My Profile' interface. It has tabs for 'Profile' and 'Dashboards'. Under 'Dashboards', there are four sections: 'Not Shared', 'Shared', 'Available', and 'To Be Removed'. The 'Shared' section contains 'LTE', 'Media', and 'Signaling'. The 'To Be Removed' section contains 'Discontinued'. Below these sections, a 'Selected Dashboard' dropdown menu is open, showing options: 'EMEA (Shared by others)', 'LTE (Shared by me)', 'Media (Shared by me)', 'Signaling (Shared by me)', 'EMEA (Shared by others)', 'APAC (Shared by others)', 'NORAM (Shared by others)', and 'LATAM (Shared by others)'. A 'Back' button is at the bottom left, and a 'file updated.' message is at the bottom right.

# FROM THE HIGH-LEVEL QRYSTAL INTELLIGENCE VIEW DOWN TO QRYSTAL MANAGER DETAILS. AND BACK: QRYSTAL 7 NOW ALLOWS TO MOVE BOTTOM-UP.

## QRYSTAL INTELLIGENCE SOLUTION - REPORT VIEW INTEGRATION

- The Qrystal Intelligence business logic analyzes quality data and provides high-level service reporting about your service and network performance. An emphasis is put on media performance data from Qrystal. Qrystal Intelligence can calculate individual quality thresholds for groups of trunks and raises adaptive alarms in cases of significant voice quality deviations.
- Since Qrystal 5.4 you can drill down from Qrystal Intelligence to Qrystal Manager pages to troubleshoot detected issues.
- Qrystal Manager 7 now enables the opposite direction. The optional Intelligence menu allows to view high-level Qrystal Intelligence Report View pages embedded within the Qrystal Manager frontend.



# NEW

## CUSTOMIZABLE KPIS

### MORE CUSTOMIZABLE KEY PERFORMANCE INDICATORS

- Dropped Call Ratio (DCR): ratio of connected calls that are dropped by the network to the total number of established calls
- Truncated Call Ratio (TCR): ratio between suspect short calls and the total number of established calls
- Network Effectiveness Ratio (NER): ratio between the total number of established calls, or other calls matching a configurable set of final response codes and the total number of call attempts; it is typically used to define a custom SEER.

### AWS TRAFFIC MONITORING

- AWS enables the shift to 5G packet core networks running in the cloud which allows services such as network slicing, quality of service, network automation and analytics.
- For the telco industry, one of the biggest items is the introduction of 5G networking. Qrystal 7 enables Amazon Web Services traffic monitoring.
- The AWS Virtual Private Cloud (VPC) allows VoIP traffic mirroring from any Amazon EC2 instance, e.g. virtualized LTE eNode-B, as mirror source to a mirror target.
- With Qrystal 7 you can easily setup VPC Traffic Mirroring using the VPC Console, EC2 CLI or the EC2 API.



# QRYSTAL 7 NEW FEATURE OVERVIEW

Everything in detail you can find in our Release Notes (VPF300-60A\_Qrystal\_Release\_Notes)

## QRYSTAL 7: FULL LIST OF NEW (AND CHANGED) FEATURES

- LTE Location Information on Mass Data
- LTE Trunk Statistics with Cell-ID Granularity
- 4G VoWiFi Support
- 4G SRVCC Support
- Customizable DCR, TCR and NER KPIs
- Dashboards Enhancements
- Call Flow Diagram HTML Export
- Call Pages Enhancements
- xDR Pages Enhancements
- Streams Pages Enhancements
- Data Management page enhancements
- CDR Web-Service API
- Amazon Web Services Traffic Monitoring
- Qrystal Intelligence Solution - Report View Integration
- Qlear Enterprise Probing Solution - Compatibility
- Qrystal Probe Version 6 and 5.4 - Compatibility
- Security Enhancements
- Software Ecosystem Updates

