



QUALITA Product Overview

Customer-centric Measurement of End to End Quality

Without quantifying and understanding the Quality of Service (QoS) delivered to your subscribers the optimization of your network cannot be efficient. Limited engineering resources cannot be prioritized and allocated to the areas which most affect subscriber experience. This inefficiency will be intensified as your network introduces further services on its move towards 3G.

Further, additional services will demand better information share between Customer Care, Marketing, Technical and Network Operations departments. Ultimately, all should be working towards delivering the optimum subscriber experience. AIRCOM's QUALITA tool will enable you to measure and quantify this experience, allowing you to:

- Align the efforts of the customer facing and engineering departments
- Direct your Performance Management capability to areas of maximum benefit
- Deliver critical subscriber information to your Marketing Teams
- Measure the effectiveness and uptake of new services, allowing you to direct resources to ensure their future success
- Offer tiered pricing for different customer QoS levels

QUALITA will deliver a critical source of advantage to your organization. You will better understand how your subscribers are experiencing your network, and, you will be better positioned to deliver what they want.

Key benefits of QUALITA include :

- Measures end to end quality with a customer-centric approach
- A powerful multi vendor, multi technology, Unix/NT based platform for analysing Call Detail Records (CDR)
- Unique QUALITA Level based method for quantifying quality
- Comprehensive GIS view of quality over Webwizard (Aircom's Web GIS Tool) - Easy scalability
- Provides key marketing information to gain a better understanding of customer needs and customer behaviour
- Powerful drill-down analysis application resolves QoS degradations at an engineering level
- Flexible SLA (Service Level Agreement)/ SLO (Service Level Objective) manager that allows monitoring of QoS and QoE (Quality of Experience) delivered to subscribers, locations, services and terminals
- Highly flexible benchmarking enabling customisation of QoS/QoE benchmarks
- Vigilant Alarm Management System allowing the prevention of QoS/QoE degradations and SLA/SLO violations
- Availability Alert Manager simplifying the maintenance and repair of the network

QUALITA - Part of the ENTERPRISE Suite

QUALITA features

QUALITA gives the mobile operator facility to measure the end to end quality of its GSM, GPRS and 3G networks. The tool operates at 3 levels:

1. Subscriber level, measuring Quality of Experience (QoE)
2. Service level, measuring Quality of Service (QoS)
3. Network level, measuring Key Quality Indicators (KQI)

The product caters for the growing demand of multi-vendor, multi-technology network operators who require the ability to measure the end to end quality of their network and analyze the reasons for its under-performance. QUALITA is capable of measuring the end to end quality of calls and sessions for each of the following:

- Service Type
- Subscriber group
- Handset model
- Network location

What does QUALITA measure?

Based on network CDR information, QUALITA measures the following:

QoS indicators

- Reliability
- Delay
- Precedence
- Peak and mean throughputs
- Uplink and downlink data usage
- Call/Session duration
- SDU error ratio
- Residual bit error ratio
- Transfer delay
- Traffic handling priority
- Maximum and guaranteed bit rates

QUALITA monitors QoS indicators for each of the 3G traffic classes:

- Conversational
- Streaming
- Interactive
- Background

QoE indicators

Mobility

- Location updates
- Paging
- Handovers
- Roaming

Accessibility

- Call/Session success
- Services/Content success
- Short messaging success
- Supplementary services success
- Inaccessibility due to network reasons
- Inaccessibility due to subscription limits

Availability

- Core network availability
- Radio network availability
- VAS availability
- Access network availability
- IP network availability

End-to-end Quality measurement

Allows combined reporting of QoS information contained in CDRs and IPDRs (IP detail records):

- End to end Call/session setup success
- End to end Call/session setup delay
- End to end Conversation and voice quality
- End to end QoS (Combined IP and Mobile network)

QUALITA Level

An effective and unique method devised by AIRCOM for quantifying quality based on subscriber groups, locations, services and handset types. QUALITA Levels offer a quick and comprehensive way of understanding the degree of degradation that a customer/customer group experiences for a certain service(s) in a certain location(s) for a certain terminal type.

A default setting of 6 QUALITA Levels are user-customizable up to 16 QUALITA levels, giving the user access to key information that can play an integral role in the future marketing strategy of the operator.

QUALITA interfaces

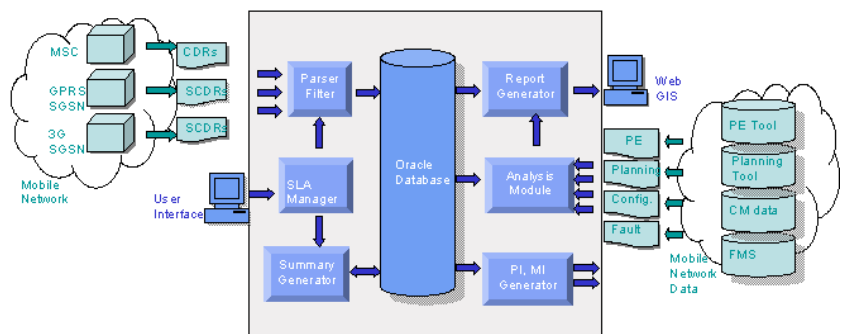
QUALITA cleverly interfaces with any of the following CDR sources in a GSM/ GPRS/ 3G network:

- Network element (MSC, SGSN, GGSN)
- Charging Gateway or Mediation Device
- Billing system

QUALITA also interfaces with:

- Performance Engineering databases from Network management tools for QoS/ QoE Analysis
- Planning tools for GIS based views
- Alarm Management and configuration management systems/databases for availability inputs
- Billing systems for customer discounts related to Service Level Agreements

QUALITA Architecture



The QUALITA Oracle database for CDRs also supplies:

- Performance information (PI) to performance management tools
- Marketing information (MI) to support business development processes

CDR Streaming and Processing

- Multi-vendor parsers suited to different network elements, technologies and operators
- Near real-time streaming and processing of CDR data
- Filtered CDR archives maintained for post-processing and fault analysis

SLA Manager

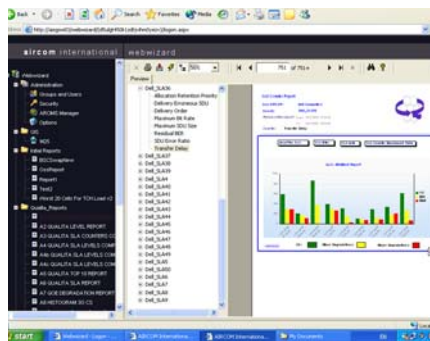
- A friendly, easy to use, user interface allows the user to set up a Service Level Agreement (SLA).
- Alternatively the operator can create their own internal Service Level Objective (SLO) for a certain subscriber group, service type, location etc.
- Allows benchmark settings for quality at subscriber level, service level and network level.
- Defines QUALITA Levels for easy understanding of quality offered in a mobile network.

Reports and alarms over Web GIS (WebWizard)

- The Web GIS based user interface makes it easy for the engineer to understand and analyze the results of quality measurement through GIS views
- A Crystal Report based reporting interface offers further details of QoS/ QoE at the engineering level

- Efficient Alarm Manager continuously polls quality data and raises alarms for minor and major degradations of QoS or QoE
- Availability Alert Manager provides immediate information of unavailable network elements for important maintenance and repair of network.

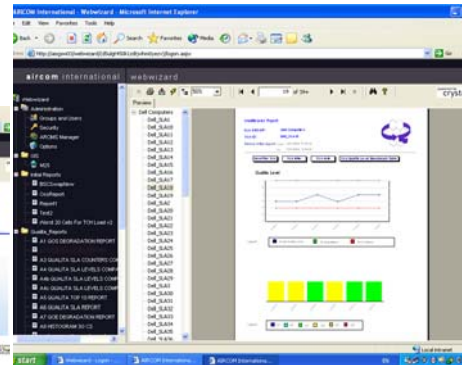
- Availability Alert Manager performs calculation of down time per network element (RN, CN, IPN) which is then checked against the SLA downtime conditions.



Crystal Reports based QoS Counter degradation report

QoS / QoE Analysis

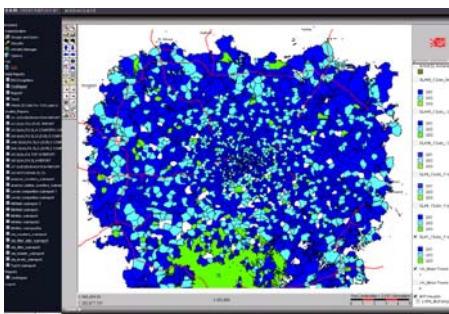
- At GIS level, QUALITA enables the viewing of relevant network information (best server, interference, site data etc) to understand the reasons of QoS or QoE degradation in a particular part of the network.
- At an engineering level, an analysis application drills down to the location and performance counters that are responsible for degradation of quality. Performance counters are automatically picked from performance database/tools for Radio Network (RN), Core Network(CN) and IP Network(IPN).



QUALITA levels over a period of time for Video Streaming in a selected area

Marketing Feedback

- The CDR database of QUALITA can be used to extract literally any information related to subscriber behavior, usage patterns, service usage etc. that the operator might be interested in tracking.
- Comparison reports compare quality offered to/by two or more locations, services, handsets or subscriber groups.
- Top10 reports provide information on best performing handset, areas with high call usage, services with high usage, services with best quality, locations with best quality and subscriber groups with highest call usage etc.



QUALITA levels in an SLA-defined area for an Interactive service (GIS view)

AIRCOM ENTERPRISE is a fully integrated planning, provisioning and operation management tool suite, with common user interface, map view, database, security and administration facilities. The ENTERPRISE tool suite supports field based laptop users and web access. See the ENTERPRISE Suite Overview for further details about ENTERPRISE.

AIRCOM International offers a unique solution to the mobile telecommunications industry by providing software tools, consulting services and training courses. We are experts in Radio Network Planning, Access and Core Planning, Optimisation and Operational Support Systems. For more information about AIRCOM, please request a copy of our company profile.

With offices around the world, AIRCOM supports customers in all regions with a high level of efficiency and professionalism. Please contact your local office for more information about our products and services.

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