RESEARCH OF APPLICATIONS FOR QOE AND QOS ANALYSIS IN CELLULAR RADIO NETWORKS

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In light of these trends, cellular network operators are becoming more and more interested in understanding how to scale their access networks and how to manage their customers' traffic to capture as many new customers as possible. In this scenario, the concept of experience quality (QoE) can become one of the main paradigms of quality management in cellular networks. Closely related to the subjective perception of the end user, QoE provides a broader understanding of the factors that affect the efficiency of systems, complementing traditional technology-oriented concepts such as quality of service (QoS).

As for the problem of network selection (NSP), there are now two schools of thought. There are those who believe that the use of quality of experience (QoE) is the best measure to measure the suitability of a network of candidates (CN) for transmission. On the other hand, quality of service (QoS) is also offered as a solution to network selection problems.

Aladdin Nettest is the first and only open source application based on open sources and open data. It generates and processes all results objectively, reliably and transparently; tests 150+ parameters: speed, allows to test a drive; optional hardware integration; 100% compliant with BEREC (EU), ETSI / ITU-T and TK-TVO (DE) standards. [1]

The Aladdin NetTest app evaluates all currently available Internet usage scenarios at a price in one piece of software. This includes routine measurements such as signal, bandwidth, packet delay or loss, and focuses in particular on parameters that determine network neutrality and quality of service. It changes how the end user experiences the quality of their personal use of the Internet.

The reliability of (aggregated) statistical estimates primarily depends on the quality of each individual measurement result. Quality control is fully automated and is achieved by comparing measurement frequencies and cross-comparisons with different measurements. The testing system is designed to be adaptive, ie once identified. Violations are automatically identified if they occur later. Downloads are measured, as are all relevant parameters for monitoring network quality, such as latency, packet variance, packet loss, etc. In addition, the Aladdin Nettest handles all important target information that describes the context of the measurement. Only in this way can the measurement results be tested and carefully checked for reliability and reliability. [1]

Another application QoE (Quality of Experience) - a software component designed to collect and analyze statistics that assess the quality of services provided

from the point of view of the subscriber, his perception of the use of certain services of the operator. [2]

The main reason for the outflow of subscribers is dissatisfaction with the quality of services. The very perception of quality often depends on factors beyond the operator's control - a clogged Wi-Fi frequency band, an old CPE device, malware installed on the computer, which slows down its work, etc. QoE allows the operator to "look" inside the subscriber NAT and diagnose problems of this kind in this segment of the network. Having identified potentially dissatisfied subscribers, you can quickly take measures to retain them. As a rule, the work on maintaining the existing subscriber base requires less costs and gives a greater economic effect than attracting new customers.

Two factors directly affect QoE: factors related to the user and the level of service. Because the interacting process of the user and the server must be in a certain harmony, and the objective environment has a great impact on the process. We can define QoE as the future degree of user recognition in this environment. Therefore, its benefits include factors directly related to the user.

Advantages of QOE - Quality of Experience: ability to provide QoS on the operator's network; enrichment of information on billing; high performance, installation on a standard server; automatic creation of tickets in support; easy to install and user-friendly interface; API for integration with other systems; possible installation on copies of traffic, does not affect the quality of services; universal mechanism: works with all devices, access technologies and service models. [2]

You can display trunk problems:

1. The number of CRC per week;
2. Access switch;
3. Trunk switch;
4. Vendor subscriber device.

Despite the shortcomings, we can note its fairly large resource consumption. The advantages are the focus on human perception, the ability to control at any stage - from the formation of the signal to its delivery, information about the actual situation.

It can be assumed that in the future more widespread practical application will find solutions based on the elimination of shortcomings, while quality control will shift towards subscriber devices. For example, there are already software components capable of continuous monitoring of algorithms. They can be activated with the permission of the subscriber who owns the device.

References:

1. The Alladin Nettest on computer. URL: https://appnapc.com/535471/ (Last accessed: 01.03.2021).

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