Estimation of services quality given in convergence nets

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Abstract - **The estimation of services quality is presented in convergence networks, based on the concordance of parameters of indexes of quality**.

Keywords - **an estimation of quality, indexes of quality, network, services**.

I. INTRODUCTION

Steady growth of demands on communications services is a characteristic feature of modern period. Contemporary services mean automated treatment, storage and giving information on request with the use of facilities of the computing engineering. Telecommunication networks must pass multicomponent information (speech, information, video, audio) with necessary synchronization of these components in real time and by the assured parameters of quality of service [1]. For example: Triple play service (high speed internet; digital television; telephony) is provided the multiservice network of wide-band access and such convergence allows to offer new services with the estimation of quality of their grant.

II. METHOD DESCRIPTION

Each of products (services), and also their combination (package) is necessary to estimate from point of quality of the given service – QoS. It is necessary to take into account that the criterion of quality of the given service can be examined both from position of User and from positions of Operator of communication and Supplier, that results in the necessity of acceptance of the concerted estimation of quality of the given service, I.e. there is possibility of comparing to the normative indexes.

The model of estimation of QoS is examined in the work on the basis of concordance of parameters of indexes of quality of the given service (speed, exactness, availability and others). Every service is characterized by the set of single indexes, united in a group. For every group the complex estimation of quality of this service is determined. Obtained complex estimations for every service are utillized for forming of the generalized estimation of QoS for all of services of package (speech, information, video, audio). There is also possibility of estimation of QoS on all of array of services, given in convergence networks. Basis of forming of estimations of QoS are single indexes which are located at lower level of hierarchy of the system of estimation quality. For taking them in one complex every single index of QoS is appropriated estimation in marks on the basis of the developed scale in which amounts of marks, obtained by the given index, depends on the existent norms of quality for this index and corresponds with the degree of non-fulfillment of the norm [1]. The scale of values of indexes of QoS is presented as a table.

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TABLE OF SCALE OF VALUE
OF INDEX OF QoS

Non-fulfillment of norm of quality, %	Value of index, marks
n_N^i	N^i
n_{N-1}^i	$N^i - 1$
…	…
n_1^i	1
n_0^i	0

Here n_N^i - an index of complete implementation of N - of norm of quality of i - member of the group which are provided by a value N^i marks, n_{N-1}^i is that deviation from the norm of quality which provides a value $N^i - 1$ marks, etc.

Thus, in every j- group an i- index gets an estimation in the marks of B_{ij} ($I=1,…,I$ it is an amount of indexes, $j=1,…,J$ it is an amount of groups). The complex estimation of QoS of j-service (service, formative the j group of indexes) is formed in accordance with expression (1) for all of $j=1,…,J$

$$B_j = \frac{\sum\limits_{i=1}^{I} B_{ij} w_i}{\sum\limits_{i=1}^{N} w_i}, \qquad (1)$$

where w_i is meaningfulness (weight) of i index.

Further, taking into account meaningfulness of w_{jl} j-service in l- package of services. It is possible to get the generalized estimation of B_l of services of package ($l = 1,…,L$; L is an amount of services of package) in accordance with expression (2):

$$B_l = \frac{\sum\limits_{j=1}^{J} B_j\, w_{jl}}{\sum\limits_{j=1}^{J} w_{jl}}. \qquad (2)$$

If necessary, having estimations of meaningfulness of l-packages of services, it is possible to get the estimations of QoS on all total services of all of packages, given in convergence networks.

III. CONCLUTION

Estimations, expected thus, are necessary information for control the system by quality both for the separate member of group and for all of the system as a whole. Findings can be utillized also in the system of rating estimation of activity of structural subdivisions of telecommunication operators.

REFERENCES

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