

ROUTING USING LOAD BALANCING TECHNOLOGY IN TELECOMMUNICATION NETWORK NODES

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In modern telecommunications networks (TCN), which developed in the framework of the concept of NGN (Next Generation Network), the values of quality of service (QoS) largely depend on how well we can solve problems of routing. Among the directions of development in modern routing protocols is to attach them with load balancing functions in a variety of ways. The implementation of load balancing technology into practice allows us to optimize the solution of routing problems, and to use network resources efficiently, resulting in improved values of QoS parameters. The problem of distributing streams in telecommunication systems becomes not only one of the specific problems along with many tasks such as choosing the topology and bandwidth of communication channels, but also one of the key factor from which the numerical values of the QoS parameters depend. In the scope of the routing models with maximum load channel coefficient, balancing coefficient go up linearly with increase in network load, it ensures that no oscillations will occur in the numerical values of the main indicators of QoS. However, result of a study of such models identified that the conditions, under which load balancing by the criterion of maximum use of communication channels, does not always allows us to maximize quality of service values. So it is suggested to change the criteria for solving routing problems in order to improve quality of service values.

In this paper, we consider routing model with load balancing technology built with the implementation of multi-path routing strategy, which is orientated on software-configurable network. In this model, along with load balancing criterion of optimality, which is associated with the minimization of the maximum load in communication channels, method of using an average additional multipath delay adjustment criterion is also proposed. Implementing this criterion can link to zero contour latency packet for each traffic

Researches on this model were conducted by comparing it with a previously known model. By using the proposed model, the value of multi-path delay was improved. The probability of packet delivery when solving the routing problem in the scope of the investigating model remained almost at the same level of values obtained under the previously known models. Advantage at the average multipath delay in the probability of timely delivery, equal to 0,999, obtained by solving the routing problem in the scope of this model, compared with the solution in the scope of other models was 15-30%, depending on the intensity of traffic entering the network.

Implementation of the proposed model is suitable for practice in software-configurable networks in which a higher capacity network servers operating as compared with conventional IP-routers can compensate a complication of calculation process.