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Article Information

An Innovative Approach for Online Bandwidth Adjustment in IP DiffServ Networks Using Learning Automata

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Summary: Audio and video conferencing are two examples of the applications that need a network for providing QoS guarantee according to the available bandwidth. A very important factor in QoS is end-to-end delay. The destination node receives the packets after they go through the routers queue. Therefore, if the network guarantees the queuing delay in routers, the network will find the ability to guarantee end-2-end delay. Moreover, the developers too will find the opportunity to sign contracts which are based on Service Level Agreement (SLA). Queuing delay can be solved with using bandwidth provisioning. Typically there are many ways for band provisioning. But just two methods concentrate on the queuing delay in router queue. However due to some shortcomings, these methods are not suitable for our aim. What we have presented in this paper is method which guarantees queuing delay of three service classes of DiffServ networks at the same time. The method that we have suggested uses learning automata, and it will not be necessary to have any knowledge or presumptions of traffic model and network parameter for using it. Thus one can use our adaptive method online on a network which has various features without reconfiguration. On the other hand the computational complexity of our method is very low and this feature enables it to be applied on high-speed networks. We have also evaluated the efficiency of our method in comparison to the previous methods.

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