Implementation of Intra-ONU Scheduling for Quality of Service Support in Ethernet Passive Optical Networks

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References:
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Abstract:
The Ethernet passive optical network (EPON) is a reliable cost effective, high bit-rate point-to-multipoint optical access network. With new applications and services that emerged in last decade, the quality of service support in EPON has become a major concern. In our work, we analyze the performance of dynamic bandwidth allocation algorithms and intra-ONU scheduling algorithms, and further investigate how a combination these algorithms can be implemented in EPON in order to efficiently support the transmission of multimedia traffic and improve the performance of the low priority traffic at the same time. The system model separates the transmission of high priority traffic from the transmission of lower priority traffic and introduces the implementation of intra-ONU scheduling algorithms for lower traffic class transmission. Numerical results show a slight degradation of transmission characteristics for high priority traffic but on the other side, significant improvement of the lower priority traffic transmission parameters has been detected.

Keywords:
dynamic bandwidth allocation (DBA), quality of service (QoS), intra-ONU scheduling, Ethernet passive optical network (EPON)