



**Paper 174 – Technology**

**A FAULT DYNAMIC BANDWIDTH ALLOCATION MECHANISM IN ENHANCED EPON ARCHITECTURE**

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**ABSTRACT**

Passive optical network (PON) is being considered as one of the best candidates for next-generation optical access solutions, delivering triple-play services to the users with broadband Internet access. Currently, Time-Division-Multiplexing (TDM)-Ethernet PON (EPON) is one of the existing PON solutions. In Time-Division-Multiplexing (TDM)-EPON, a Dynamic Bandwidth Allocation (DBA) plays a primary task to properly allocate the bandwidth to all users, even when faults occurred. Therefore, a practical and cost-effective survivability DBA mechanism is becoming the key issues to the continued development of viable EPON solutions. In addition, 80 percent of fault occurs within the first/last mile. In this paper, we propose a Fault Dynamic Bandwidth Allocation (FDBA) to maintain and guarantee the quality-of-service (QoS), even when there are multiple faults occurred in the Distribution Drop Fiber (DDF). Simulation results show that our proposed FDBA is able to withstand up to eight DDF faults without any significant impact on the overall system performances.

**Keywords: TDM-EPON, Fault DBA, QoS, DDF Fault, System Performances**

