Riga Technical University
52nd International Scientific conference
Section Electronics, Telecommunications and eSociety
Riga, Latvia, October 13-14, 2011

Investigation of future perspectives and technology of Passive Optical Network

Sandis Spolītis, Ģirts Ivanovs
Institute of Telecommunications
Riga Technical University
Riga, Latvia

Optical transmission is getting more popular in the access network due to the increasing demand for bandwidth. This paper introduces an overview of Wavelength-Division-Multiplexed Passive Optical Network (WDM-PON) technology and Time-Division Multiplexing Passive Optical Network (TDM-PON) as well as different passive optical network architectures such as Gigabit PON (GPON), Broadband PON (BPON) and Ethernet PON (EPON).

Gigabit-capable passive optical network (GPON) architecture has been standardized in ITU-T Rec. G.984 series. It has been viewed as a promising technology for the next-generation fiber-to-the-home (FTTH) optical systems because it can provide high-speed optical subscriber networks with broad bandwidth and deliver multi-services (e.g. Time-division multiplexing (TDM), Ethernet) with the required Quality of Service (QoS). Therefore, with the continuous increase in higher bandwidth demand applications like Internet Protocol television (IPTV), Video on Demand (VOD), high-definition television (HDTV), etc, the need for much higher capacity over GPON links is more obvious. The advantages and disadvantages of each PON architecture is shown in this paper and the comparative results are provided.

This work has been supported by the European Social Fund within the project «Support for the implementation of doctoral studies at Riga Technical University».