

ABSTRACT

DSLAM (Digital Subscriber Line Access Multiplexer) is an access network device consisting of a modem and multiplexer for xDSL customer service. DSLAM in the network's position lies between access networks with backbone networks. DSLAM placement location was originally placed on the telephone central office, but in reality the DSLAM at the office placement have range problems, which are generally located at a distance customers more than the maximum range capability of the DSLAM it self. After the technology of optical fiber access networks are operated, it would be possible placement in a remote DSLAM to shorten the length of copper wire so that more customers can be served. So the recent development of PT Telkom to do with the DSLAM designed for outdoor, called Remote DSLAM to shorten the copper segment between the DSLAM to the customer terminals (CPE). Technology, optical fiber access network which is operated for access to the remote DSLAM is still dedicated.

The goal this final project is about the design of GPON technology for remote DSLAM transmission in order to optimize Internet services to customers who are on fiber access network. GPON (Gigabit-capable Passive Optical Networks) is one of the access technology using optical fiber as a medium for transport to customers. GPON technology has been released by the ITU-T and GPON can also accommodate the legacy systems that have been implemented on the customer access network. This technology supports a great speed, the increase in security, greater bandwidth and choice of Layer 2 protocol (ATM, GEM, Ethernet).

Proper test results on the design of this system showed that the link meets the power budget and rise-time budget. Greatest Attenuation present in ONU (Optical Network Units) connected to a remote DSLAM RAQ with 27.07 dB attenuation is still appropriate tolerance determined in ITU-T G.984 in the amount of 28 dB. Here also the rise time budget of the test results value T_{system} is 300.2625 ps is still under the standard for GPON with 1:25 bitrate T_{system} Gbps to 560 ps.

Keywords: GPON, the remote DSLAM.