

ABSTRACT

Growth of Next Generation Network (NGN), making network configuration access to have services based on data or IP based application as accomplishment of requirement and customer's trend. But one of ready constraint in providing that services, needs a high capability broadband of network access, with the big capacities and high speed. So it's offered a fiber optic transmission network use the technology GE-PON, expected can give the solution to the accomplishment NGN. GE-PON as a one of the fiber optic technology access use PON technology as media transport to customer in architecture of FTTx network. A forum of IEEE have GE-PON standard at IEEE 802.3ah, which capable in supporting data speed until 1 Gbps based on Ethernet and IP protocol, with the maximum reaching up to 20 km.

Represent GE-PON still relative newly technology, so it needs to do research laboratory about the peripheral performance, It's important for any requirement in next implementation. This Final exam will study about performance analysis of GE-PON technology in accommodate the future access network requirement, with the research test of Wireline laboratory in Telkom RDC Bandung. Performance's parameter point of view, consist of frame loss, throughput, and latency. The process of analysis is began by doing peripheral measurement and from result of measurement data is compared with the peripheral specification and also other supported theory. There are five sighting aspect in analyzing performance of GE-PON technology, consist of peripheral efficiency, management bandwidth, peripheral ability in providing VLAN and multicast channel for the IPTV and also the peripheral performance when overcome with data service.

As the result obtained from fifth aspect sighting can be categorized that has the standard precisely as according to the specification of peripheral and analysis theoretically. Maximal throughput peripheral provides 800 Mbps, can support ID VLAN up to 4032 VLAN with throughput 100% and 206 channel multicast with throughput 94%.