ABSTRACT

Currently the telecommunications needs of communication that can bring all of these needs (whether voice, video, text, graphics, data, etc.) in a carrier medium. Ethernet Passive Optical Network (Epon) is one technology that can serve all those needs in a single network connection (single fiber optic). Upstream transmission mechanism in Epon using TDMA (Time Division Multiplexing Access) to prevent collisions between frames. But this mechanism has the disadvantage that there is no statistical multiplexing between the ONU may terjadi.Oleh for OLT using Dynamic bandwidth allocation (DBA) Algorithym with interleaved polling approach.

There are six types of scheduling discipline on the DBA algorithm, which can be used, namely fixed services, credit services constant, limited service, credit linear, elastic service, and gated services. But in this thesis only compares three types of six kinds of scheduling discipline on the DBA algorithm, namely fixed type of service, limited service and gate service.

The simulation results showed that the fixed service with 1:16 spliter have a better QoS performance when compared with the limited type of service and gated service. Evidenced by the value obtained from the simulation results as follows: Value of Delay on Voice of 1.40735 ms, the data of 157 862 ms, and the video amounted to 24.6823 ms. Throughput value in the voice of 314 758 Kbps, the data at 1391.79 Kbps, and the video of 3002.38 Kbps. Jitter value on the voice of 0.532088 ms, the data at 1.18889 ms, and the video amounted to 0.777257 ms. There is no voice in the Packet Loss on fixed type of service or in other words Packet Loss on Voice worth 0%. While there are video and data on packetloss on fixed type of service, that is equal to 72.8541% for video and 7.58552% for the data.

Keywords: DBA algorithms, Epon, fixed services, limited services, and gated services.