ABSTRACT

By using MPLS+DiffServ, *service provider* can provide several Class of Service with Quality of Service (QoS) guarantee to the customer such as data, voice even video. Each kind of service have its own sensitivity to each QoS parameters, thereby it has different value that being guaranteed in *Service Level Agreement* (SLA) which is promised by PT. Telkom to the customer.

This Final Project analyzes the service's performance in PT.Telkom's IP-MPLS network. Measuring and analyzing is done forward customer that has three classes of services which are provided by PT. Telkom i.e *interactive*, *gold* and *silver* using *Network Management System* (NMS).

This research shows that PT. Telkom provides *delay* characteristic as guaranteed in SLA, which are 51.4750 ms, 50.7167 ms and 50.4425 ms for its three types of traffic. PT. Telkom also gives good *availability*, which reaches 100 % for a month. So does with *packet loss* average, PT. Telkom provides 1,7203 % for its *gold* Class of Service from 5 % value that guaranteed in SLA. But, *packet loss* averages for *interactive* Class of Service reach 1.4475 % and 1.4727 % for its two kind of traffic, bigger than the SLA guarantee which is 0.5 %. QoS mechanism and *bandwidth* management need to be applied in customer site (LAN) to improve the customer's service quality

Keywords : MPLS, DiffServ, *Service Level Agreement*, QoS, *dela*y, *availability*, *packet loss*