

ABSTRACT

PT. XYZ is one of the leading companies in the field of providing the most comprehensive and leading information and communication technology services in Indonesia. XYZ Has implement Multiprotocol Label Switching (MPLS) technology. MPLS technology has evolved and already has several types, including Multiprotocol Label Switching Internet Protocol (MPLS-IP) technology that has been implemented. XYZ still has deficiency, Traffic on the main path have high congestion due to the increasing number of costumer. The second path is used as a backup path if the main path is disconnected or there is a problem, the displacement is not feasible enough for sent to another path and can impact to the client who used the path. With TE technology the company can improve performance with tunneling, therefore the density on the main line will decrease and displacement to the backup path of the main path will be better than the pre-implemented technology. This research was conducted by Network Development Life Cycle (NDLC) method start from analysis, design, and prototype simulation using EVE-NG simulator. The result of the proposed simulation is the delay time of 7.3 ms and the average packet loss value of network simulation result is about 1.89% - 9,81%. These results prove that the problem is almost perfect in category according to TIPHON for normal and good state of emergency in the proposed scenario.

Keywords: MPLS, MPLS-IP, Traffic, TE, NDLC