

ABSTRACT

The increasing needs of information technology has encouraged the rapid development of information technology itself. The development of information technology is balanced by the expand of bandwidth capacity provided. This higher bandwidth capacity will certainly leads to an information technology that can provide wide range of services, such as triple play which includes voice, data, and video. In a complex VLAN network that has many users, there will be a very high traffic passing through the link to trunk mode as links interVlan. This will cause the congestion of the link and allow queuing and stacking packages to happen. To overcome this problem, larger bandwidth in the link is required.

In this thesis, LACP (Link Aggregation Control Protocol) is implemented into the interVLAN in the purpose of combining multiple physical channels into a single logical channel with the combined bandwidth of those two. However, some researcher considered that this LACP is less reliable in terms of balancing the traffic load and resulting the non-optimum throughput. Hence, the author tries to take advantage of alternative schemes by adding a round-robin algorithm that can balance the traffic load on the interface link aggregation.

The result of this research shows that Link Aggregation with round-robin balance can produce better performance that approaches the level of performance produced at normal network without using Link Aggregation, even better in voice services, as shown in the value of jitter and packetloss which are smaller. The throughput, also, can be increased 92.23% of the throughput generated by the Link Aggregation using LACP on network conditions without background traffic.

Keywords : InterVLAN, Link Aggregation, Triple Play, Round-robin, Bandwidth