# ABSTRACT

Towards development the current generation and the future of internet services are the integrated services (data , voice , and video ), they are called triple play services. Triple play requires communication in real-time, but the service needs of data in real-time is a constraint in the internet network problems. Thus, they invented a computer-based MPLS network . MPLS is a labeling technique, which is a package that has been given the label on Ingress , will be sent to the Egress without reading the IP address, but it read the label, so that the information will be delivered faster .

The final project will be simulated the triple play services (voice, video, data) with MPLS-based on IPv6 as a backbone network using OSPF routing protocol. Then it analyze the QoS parameters of the measurement results, and compare it to a different MPLS network routing protocols, it is ISIS routing protocol. The simulation will be using IPv6 MPLS 6PE method.

The conclusions obtained from this thesis is the result of QoS with MPLS using IPv6 IS-IS routing, in general has a better result than the OSPF routing. It is because the IS-IS routing support Single Topology mode, that run both IPv4 and IPv6 with the same SPF calculation, in the other hand OSPF is needed two control planes to run both (IPv4 and IPv6) with OSPFv2 and OSPFv3, so it reduces complexity and resources of OSPF.

Keywords: MPLS 6PE, triple play, OSPF, ISIS, SPF, single topology.