

## ABSTRACT

The rapidly development of packet switching technology at this time is encourage various types of communication technologies to move to a platform IP-based network. Next Generation Network (NGN) is a merger of various types of telecommunications networks such as PSTN, PLMN, VoIP, IPTV platform into a single IP-based networks. With these concepts, NGN can offer triple play services consisting of voice, data, and video. Softswitch is an important part on NGN that can handle function of call control and manage the media media gateway. Thus allows various calls with different media access and applications can be handled by an IP-based softswitch.

To support the NGN network that offers a variety of applications, which need mechanisms to control Quality of Service (QoS) of each different service. Among them is the application of Multi-Protocol Label Switching (MPLS) that can perform packet forwarding and routing that faster than conventional IP. Also needed differentiated service (diffserv) methods that can distinguish and treat packets differently based on the priorities of each service. With the implementation of MPLS and Diffserv in the NGN core network, expected to guarantee the QoS of Triple Play services offered by NGN which will become a standard requirement for users of telecommunications technology.

In this research, is built a miniature of NGN using MPLS and softswitch as its core network. Also implemented Diffserv in that MPLS core and measured QoS parameters such as *delay, jitter, packet loss, and throughput* to be analyzed how much influence of MPLS and Diffserv implementation for multimedia services in NGN.

obtained results that the implementation of MPLS and Diffsev can improve Quality of Service (QoS) up to 63% compared to conventional IP network for real time service such as VoIP and VOD.

Keywords : NGN, Sofswitch, MPLS, IP, diffserv