

## **ABSTRACT**

*Triple Play is actually a nickname for the needs of users of communication technology will speed data communication lines, width, and can play various roles for those in need. Communication involves the communication needs of data, voice, and video. All must be able to work and converge.*

*Since Frame Relay gain popularity, the sensational growth of the Internet has encouraged the organizers Jastel and Internet Service Provider (ISP) to expand massively their backbone infrastructure, to accommodate the traffic flooding the Internet Protocol (IP). At the same time, the organizers Jastel and network equipment providers have issued switch-routers are more reliable in its network, which to switch (function layer 2) packet (IP datagram layer 3) quickly, without going through the traditional routing and slow, which based on IP addressing. The new generation of Label Switch Router (LSR) is using MPLS to add a label of 32 bits in the IP packet, which will instruct the router to the IP network to pass the package without checking the contents of the package, allowing IP packets to pass through the network more quickly, than if the using routing protocols. MPLS label is between layers 2 and 3 of the order of protocol, and provides information on how to: 1) to establish a trajectory path in an IP network, 2) mengidentifikasi packages that have the same classification of transport, and 3) set the Quality of Service (QoS) of the package.*

*In this final AToM network simulation applications on Triple Play services. The simulation was conducted on a small network using GNS3 as MPLS routers. From simulas results showed that the use of Frame Relay over MPLS technology is not always produce a good performance. Judging from the results of packet loss and jitter are obtained, the value exceeds the maximum standard value, It is known that the jitter has a standard maximum value of 30ms (Cisco), and Packet Loss has a standard maximum value of 20%.*

*Keyword: Triple Play, MPLS, AToM, Frame Relay*