

## **ABSTRACT**

WAN network or Wide Area Network is a computer network whose coverage area is very large and broad so that it can cover regions between countries, continents, or the world. WAN networks are usually more directed to the internet network, because the internet is an example of the WAN network that is most often used at this time. If the Wide Area Network already covers the intercontinental area then it is called a global information network or the internet. By using Q-in-Q tunneling, contrast with VLAN, VLAN are usually implemented with other master-port interfaces, where there will only be one vlan tag in the ethernet frame. But in more complex implementations, sometimes there are times when we need VLANs within a VLAN, which is called Q-in-Q. By default 802.1Q only allows one vlan header tag, but the Q-in-Q feature makes it possible to add more than one vlan header to a data packet. In this research a WAN network simulation design using Q-in-Q Tunelling on Telkom School Network. The results show that the Q-in-Q Tunelling method is very feasible to be applied on Telkom School Network WAN network based on Delay, Throughput and Packet Loss

*Keyword: Computer Network, Wide Area Network, Q-in-Q Tunelling*