

## **ABSTRACT**

*As information technology develops today, the need for security in the information sent will be increasingly vulnerable to being hacked, where everyone needs secure information. Therefore a VPN is made to overcome problems on an unsecured network. IPsec is considered as the best VPN protocol today, while WireGuard is the latest VPN protocol that claims to have strong security and better performance. The test is carried out on a VPN network that connects two local network servers and a client via the internet. This research looks at the performance between IPsec and WireGuard VPN protocols in terms of QoS parameters. The scenario for testing the use of files to see the QoS of the VPN protocol will be carried out, the first scenario involves sending files of various sizes via the FTP protocol. The results show that the IPsec delay parameter with a value of 1.68ms is superior to WireGuard with a value of 3.88ms. Then the packet loss parameter shows that IPsec with a value of 4.20ms is superior to WireGuard with a value of 10.97ms. Then the TCP IPsec throughput parameter is superior with a value of 22.16 Mbit/s compared to WireGuard with a value of 47.3 Mbit/s while UDP WireGuard is superior with a value of 79.06 Mbit.s compared to IPsec with a value of 79.34 Mbit/s. Then the WireGuard jitter parameter is superior with a value of 0.29ms compared to IPsec with a value of 0.39ms. WireGuard is faster in transferring data.*

**Keywords:** VPN, IPsec, WireGuard, Network Performance, Quality of Service (QoS)