

ABSTRACT

Reliability and availability of services in network environments such as data centers or financial institutions play a very important role. Especially in the exchange of data between companies, network connectivity and reliability are top priorities. Therefore, it is important to compare existing network methods to determine which is more suitable and effective as needed. Two common methods often used in network connections are Dual Homed and Single Multihomed. This research focuses on the comparative analysis of two Border Gateway Protocol (BGP) methods, namely Dual Homed and Single Multihomed, in supporting internet connections between different Internet Service Provider (ISP) networks. Dual Homed has two or more connections to the same Network Access Provider (NAP)/ISP, while Single Multihomed has multiple connections using one or more other service providers connected to two different NAPs/ISPs. Tests were conducted with failover and no failover scenarios, by testing ICMP and SFTP traffic as network Quality of Service (QoS) parameters. Test results on ICMP show that both methods have insignificant differences in throughput, packet loss, delay, and jitter. However, in SFTP testing, the Single Multihomed method shows better results than the Dual Homed method. Topology 1 using Dual Homed produces lower throughput and higher packet loss in the no failover scenario. Meanwhile, in topology 2 with Single Multihomed, throughput is higher and packet loss is lower in the scenario without failover. In conclusion, the Single Multihomed method is superior in QoS parameters compared to the Dual Homed method. However, the application of the right method must be tailored to the specific needs and conditions of the network. This research can help decision-making in choosing the appropriate BGP method to support internet connections between different Autonomous System (AS).

Keywords: *Autonomous System (AS), Border Gateway Protocol (BGP), Dual Homed, Single Multihomed, Quality of Service (QoS).*