

## ABSTRAK

Proyek akhir ini mencoba menjelaskan konsep dari BGP (*Border Gateway Protocol*) adalah sebuah protokol routing *inter-Autonomous System* dan salah satu jenis routing protokol yang banyak digunakan di ISP besar, fungsi utama system BGP adalah untuk bertukar informasi *Network* yang dapat dijangkau (*reachability*) oleh system BGP lain. disini penulis membandingkan pengukuran dan menganalisa pada saat paket dikirim dengan menggunakan IP yang akan dituju, mengukur QoS *Throughput*, *Delay*, dan *Packet Loss* menggunakan tools *Graphical Simulator Network Simulator 3* (GNS3) dan *Wireshark*. Penulis membandingkan pengukuran pertama sampai kelima, hasil QoS pengukuran pertama *Throughput* (517,08 Bps), *Delay* (220,46 ms). Hasil QoS Pengukuran kedua *Throughput* (471,20 Bps), *Delay* (241,93). Hasil QoS pengukuran ketiga *Throughput* (429,54 Bps), *Delay* (265,40 ms). Hasil QoS pengukuran keempat *Throughput* (504,81 Bps), *Delay* (225,82 ms). Hasil QoS pengukuran kelima *Throughput* (736,31 Bps), *Delay* (154,82 ms). Rata – rata keseluruhan *Throughput* (531,788 Bps) Sangat Baik, Rata – rata keseluruhan *Delay* (221,686 ms) Baik. Rata – rata *Packet Loss* tidak ada perbedaan dari pengukuran lainnya memiliki nilai *Packet Loss* yang sama yaitu 0% dimana memiliki kategori yang Sangat Baik dengan standar TIPHON.

**Kata Kunci :** BGP, *Border Gateway Protocol*, *Throughput*, *Delay*, *Packet Loss*

## ABSTRACT

*This final project tries to explain the concept of BGP (Border Gateway Protocol) is an inter-Autonomous System routing protocol and one type of routing protocol that is widely used in large ISPs, the main function of the BGP system is to exchange network information that can be achieved (reachability) by another BGP system. Here the authors compare measurements and analyzes when packets are sent using the intended IP, measuring QoS Throughput, Delay, and Packet Loss using Graphical Simulator Network Simulator 3 (GNS3) and Wireshark. The author compares the first measurement to the fifth, the first QoS measurement results throughput (517.08 Bps), Delay (220.46 ms). Second QoS Measurement Results Throughput (471.20 Bps), Delay (241.93). The results of the third measurement of QoS are Throughput (429.54 Bps), Delay (265.40 ms). The results of the fourth QoS measurement are Throughput (504.81 Bps), Delay (225.82 ms). The results of the fifth measurement of QoS are Throughput (736.31 Bps), Delay (154.82 ms). Average total throughput (531,788 Bps) Very good, Average total delay (221,686 ms) Good. Average Packet Loss is no different from other measurements with the same Packet Loss value of 0% which is in the Very Good category with the TIPHON standard.*

**Keywords : BGP, Border Gateway Protocol, Throughput, Delay, Packet Loss**