ABSTRAK

Manajemen *bandwidth* diperlukan agar *bandwidth* yang ada terbagi sesuai kebutuhan pada setiap koneksi yang terhubung. Salah satu metode yang dapat menstabilkan pembagian jumlah *bandwidth* adalah metode *Hierarchical Token Bucket* (HTB). Tujuan dari penelitian ini adalah mengatur jumlah *bandwidth* agar sesuai dengan kebutuhan penggunaan *internet* untuk kegiatan *download* dan *upload* bagi setiap user tanpa membuat salah satu pengguna mendominasi penggunaan *bandwidth* pada jaringan *internet*. Selain itu untuk menyesuaikan kecepatan akses pada saat *download* dan *upload* agar sesuai dengan standar penggunaan *internet* berdasarkan standar di SMKN Klakah. Penelitian dilakukan berdasarkan model *Network Development Life Cycle (NDLC)* dengan 6 tahap yaitu: *analysis, design, simulation prototyping, implementation, monitoring* dan *management*. Pengamatan dan observasi langsung digunakan untuk mengumpulkan data dan menganalisis masalah. Router mikrotik dikonfigurasi untuk desain dan implementasi HTB. Hasil yang didapat setelah dilakukan penelitian Metode HTB untuk manajemen bandwidth di Lab Teknik Komputer Jaringan SMKN Klakah berhasil diterapkan. Metode ini memenuhi persyaratan untuk kegiatan download dan upload yang membutuhkan internet. Sementara itu, hasil analisa data *internet* dengan menggunakan metode QoS diperolah pengukuran kualitas jaringan dengan menilai *Throughput, delay, packet loss* dan *jitter* mendapatkan rata-rata yaitu pada kategori kecepatan bagus dengan nilai index 3.

Kata Kunci :*Manajemen Bandwith , Hierarchical Token Bucket (HTB), Network Development Life Cycle (NDLC), Download, Upload*

ABSTRACT

Bandwidth management is needed so that existing bandwidth is divided according to the needs of each connected connection. One method that can stabilize the distribution of bandwidth is the Hierarchical Token Bucket (HTB) method. The aim of this research is to regulate the amount of bandwidth to suit internet usage needs for downloading and uploading activities for each user without causing one user to dominate bandwidth usage on the internet network. Apart from that, to adjust the access speed during download and upload so that it complies with internet usage standards based on the standards at SMKN Klakah. The research was carried out in 6 stages, namely: analysis, design, simulation prototyping, implementation, monitoring and management. Problem analysis and data collection were obtained through direct observation and observations. The design and implementation of HTB was carried out using the Mikrotik router settings. The results obtained after conducting research on implementing the HTB method for bandwidth management in the Computer Network Engineering Lab at SMKN Klakah were successfully implemented and were in accordance with the needs of internet use for downloading and uploading activities. Meanwhile, from the results of internet data analysis using the QoS method, network quality measurements were obtained by assessing throughput, delay, packet loss and jitter, getting an average in the good speed category with an index value of 3.

Keywords: Bandwidth Management, Hierarchical Token Bucket (HTB), Network Development Life Cycle (NDLC), Download, Upload