ABSTRACT

Telkom University has built a new building named Telkom University Landmark Tower (TULT). However, the performance of the internet network faced challenges such as disconnections, slow services, and instability. This issue only affected some users and led to a sense of unfairness. The proposed solution is bandwidth management using the Random Early Detection (RED) and Class-Based Queueing (CBQ) methods. RED is a queuing algorithm that randomly drops packets, while CBQ divides and groups packets and users based on classes. The selection of these methods is based on their different characteristics in managing resources. The research was conducted through simulation and sniffing at TULT, analyzing Quality of Service (QoS) parameters such as Throughput, Packet Loss, Delay, and Jitter. The research results showed that the average value of packet loss, delay, and jitter were in the range of indices 4 (Very Good) and index 3 (Good) respectively, with no significant advantage between the two methods. CBQ relies on prioritization and class-based distribution for efficient traffic control, while RED focuses on queuing control and fair bandwidth allocation. Therefore, reconsideration is needed to choose the best method that suits the actual traffic conditions.

Keyword- **Bandwidth Management, Random Early Detection (RED), Class-Based Queueing (CBQ), Quality of Service**