

ABSTRACT

Internet services have become an important requirement in facilitating all aspects of life, including daily life. All internet service providers are required to be able to provide fast and easily accessible internet services for their users. This also happens in the business world focused on cafes which are usually visited by people to carry out online activities. However, it is not uncommon to find cafes that have unstable internet networks, this can disturb the comfort of customers. This happens because the latency is high and the bandwidth is smaller than the number of users, resulting in delays.

This Capstone design provides a solution to this problem, namely by using MikroTik with the Captive portal method and a website as a medium to support the success of this solution. By considering several aspects and required specifications, it is hoped that this solution can solve the problems that have occurred so far. This solution offers user time access control, equal distribution of bandwidth and makes it easier for customers to make orders, purchases and check the status of remaining user time which can be done on the cafe website. Testing was conducted using three main methods: Quality of Service (QoS) parameters using the MikroTik Per Connection Queue (PCQ) feature in two scenarios, website testing using PageSpeed Insights and Mean Opinion Score (MOS), and feature testing by users.

Based on the research results, it is revealed that this solution can solve the problems that occur, as shown by the results of testing the Quality of Service (QoS) parameters with scenario 1 (1-14 users) and scenario 2 (10 users and 29 users). The results obtained for each parameter are significant as expected, namely the average value for scenario 1 with throughput 3950 bps, delay 1.88 ms, jitter 0.264 ms, packet loss 0.02%. In scenario 2, test results were obtained for each parameter, namely for 10 users with throughput 4541 bps, delay 1.9 ms, jitter 0.0074 ms, packet loss 0.4%. Meanwhile, for scenario 2 with 29 users, the results obtained were throughput 1913 bps, delay 25.3 ms, jitter 0.0002 ms, packet loss 0.2%. Apart from testing QoS parameters, it can be seen in page speed testing using Google's Pagespeed Insight and Mean Opinion Score (MOS) which shows a mobile speed index value of 5.1 s and a laptop speed index of 1.6 s and an average Mean Opinion Score (MOS) value of 4.17 on a scale of 1-5. The success of this implementation is also demonstrated by the successful login process by entering the correct referral code, the ordering process to payment which is indicated by confirmation of successful payment, as well as checking the status of the user's remaining time which is indicated by the appearance of a page containing the user's remaining time. The conclusion from implementing this solution shows that this solution has succeeded in solving problems and meeting the needs desired by the community as a solution that is both solution and informative.

Keywords: MikroTik, cafe, website, QoS, MoS, Pagespeed