

ABSTRACT

PT. XYZ already uses a WLAN network with a frequency of 2.4 GHz and a frequency of 5 GHz. However, the current condition, network usage often results in drop connections or slow internet. To solve the problem using the Network Development Life Cycle (NDLC) method with stages, analysis, design, simulation & prototyping. The current topology design is analyzed to solve the problem at PT.XYZ. In using the frequency channel, QoS testing at a frequency of 2.4 GHz is carried out to get throughput with a value of 682 Kbps, packet loss with a value of 0.04%, and delay with a value of 0.0147 sec. At 5 GHz frequency, the throughput is 1882 Kbps, packet loss is 0.17%, and delay is 0.0072 sec. With very good test results, and placement of access points using the Ekahau Site Survey so that signal strength coverage can reach the entire room. So the solution to the problem is to replace the access point that has advantages to overcome the problem, such as airtime fairness, multiple SSID up to 16, seamless roaming, centralized management, and user accommodation up to 250 users. and topology optimization with 2.4 GHz frequency configuration on channels 1, 6, and 11 and different 5 GHz frequencies, as well as changes in placement to the roof to get a broad and evenly distributed signal. So get a topology proposal for PT.XYZ.

Keywords : IEEE 802.11, *WLAN*, *Quality of Service*, *Ekahau Site Survey*, *Access Point*, *Coverage*, *NDLC*, *Topology*, *Frequency*, *Channel*