

ABSTRACT

Wi-Fi facilities are needed to support the educational process and create comfortable lecture activities for lecturers and students. For the Wi-Fi network to be used by users properly, a study was carried out in the form of a comparative analysis of Wi-Fi networks at frequencies of 2.4 GHz and 5 GHz at the Faculty of Industrial Engineering at Telkom University Landmark Tower (FRI TULT) which consists of the fourth floor, eighth floor, ninth floor, and eighteenth floor.

The problem studied in this study is the effect of the frequency of the Wi-Fi network on the signal strength and data transfer speed received by the user's device. This study uses the Network Development Life Cycle (NDLC) method, which focuses on three stages: analysis, design, and simulation prototyping. The quality of data services can be measured by Quality of Service with delay, throughput, and packet loss parameters.

The results of the overall test scores in the room that were sampled using quality of service on FRI TULT fall into the excellent category based on the TIPHON standard during the hybrid lecture period. The benefits of doing this research, namely to determine the quality of service on a network used at FRI TULT and this research resulted in a proposed wireless network design which became a recommendation in the form of channel distribution on each access point device installed at FRI TULT using the Honeycomb method to minimize channel occurrence overlaps so as not to interfere with the performance of nearby access point devices. There are also recommendations on using frequencies on FRI TULT to reduce network congestion.

Keywords: *Wi-Fi, Faculty of Industrial Engineering Telkom University Landmark Tower, Network Development Life Cycle, Quality of Service, Honeycomb.*