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RESEARCH ARTICLE

# Quality of Service (QoS) Analysis of Video Services Youtube Stream on Wireless Network

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**Abstract**

The Indonesian Evangelical Christian Church (GKII) Tebeng Bengkulu is a place of worship for Christians who use internet network services to support the ongoing process of worship activities. With the increasing need for internet, especially on Youtube video streaming, there is a need for network analysis at the Tebeng Bengkulu Indonesian Evangelical Christian Church (GKII) Worship Building to determine the Quality of Service (QoS) on the Wireless network at the Indonesian Evangelical Christian Church (GKII) Tebeng Bengkulu. This study uses the Action Research method. QoS measurement carried out at the Indonesian Evangelical Christian Church (GKII) Tebeng Bengkulu using Wireshark software. The method used to measure QoS parameters is by connecting the server computer device to the internet via a wireless network and then streaming YouTube videos during the worship procession. Meanwhile, to find out the performance of the internet network at the Indonesian Evangelical Christian Church (GKII) Tebeng Bengkulu. Measurements were made on the parameters of QoS, delay, jitter, packet lost, and throughput, based on the results of the research, the internet network at the Indonesian Evangelical Christian Church (GKII) Tebeng Bengkulu was in the medium category.

**Keyword :** QoS Youtube ; Video Streaming ; Services On Wireless Networks

## Introduction

The development of information technology is currently increasingly advanced by bringing up new technology that we often call the internet. A reliable computer network is not only limited to the sophistication of the available devices or the connections built between units. But more on services that can provide satisfaction to its users. To maintain the quality of the video being played, a network that has Quality of Service (QoS) is needed. Refers to any technology that manages data traffic to reduce packet loss (loss of packets), latency, and jitter on the network. QoS controls and manages network resources by setting priorities for certain data types on the network.

This can be seen from the many needs for internet access, the network performance must be in good condition. A network that is connected between computers with one another and can exchange information through hardware devices such as modems, routers, and so on. So the internet network service provider must be able to solve the main problem, namely providing good service performance to be able to provide comfortable services to users. However, the main problem with video streaming services in real time on wireless networks is that there is no guarantee of the amount of available bandwidth or the amount of delay that occurs when users send audio/video files. As a result, the quality of the video streaming service will vary greatly during the video streaming service, or in other words at a time the user can communicate well, and hear the sound/image clearly, but at other times the data can change so that it is difficult to understand.

In addition to the condition of the network traffic used, one that plays a role in the quality of video streaming services in real time is Quality of Service (Qos), in which Quality of Service (Qos) plays a role in providing internet services so that it can be transmitted on a packet switched-based network. . The two most important characteristics of a codec are the quality of the audio/video produced and the bandwidth used. In general, codecs with a wider bandwidth will get better quality. According to the Techno-Okayzone survey (Fauzi, 2017), Indonesia itself is noted to be the country that controls the growth in the number of videos uploaded by YouTube users in the Asia Pacific region. Google Indonesia Head of Marketing Veronica Utami revealed that the increase in Indonesia from year to year reached 60% based on data in the third quarter of 2015 compared to the previous year. This growth is three times greater than other countries in the Asia Pacific (Nistanto, 2017).

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## Ease of Use

*A. Definition of Analysis*

According to Jogiyanto (1999:129) Analysis can be defined as the decomposition of a complete information system into its component parts with a view to identifying and evaluating problems, opportunities, obstacles that occur and the expected needs so that improvements can be proposed. Meanwhile, according to Taylor, (1975: 79) defines analysis as a process that details a formal effort to find themes and formulate hypotheses (ideas) as suggested and as an attempt to provide assistance and themes to the hypothesis.

*B. Quality Of Service (QOS)*

According to Wulandari, R (2016) explains that "Quality of Service (QoS) is a method of measuring how good the network is and is an attempt to define the characteristics and properties of a service. QoS is used to measure a set of performance attributes that have been specified and associated with a service. QoS stands for Quality of Service. In the book Quality of Service written by Paul Ferguson, it is defined that QoS is a measurement of how well the network is and is an attempt to define the characteristics and properties of a service. QoS is usually used to measure a set of performance attributes that have been specified and are usually associated with a service. In IP-based networks, IP QoS refers to the performance of IP packets passing through one or more networks. (Amarullah 2009).

*C. QOS Parameters*

Performance refers to the speed and reliability of delivering various types of data loads in a communication. Performance is a collection of several technical parameters (Jonathan, 2011)

## Prepare Your Paper Before Styling

The research method describes a series of research processes carried out in analyzing the Quality Of Service of the Wireless network. The method used is Action research. Data collection methods are used to obtain data that can support the problems to be discussed.

## Using the Template

1. Delay Test Results

The results of the Delay parameter measurement in this experiment, show the number of packet values sent is 1567 Packet, and the number of bytes obtained in the time span's 469,268, amounting to 216332 bytes.

2. Jitter Test Results

The results of the Jitter parameter measurement in the first experiment, showed the number of packet values sent was 1567 packets, and the number of bytes obtained in the time span's 469,268, amounted to 216332 bytes.

3. Packet Loss Test Results

The results of the Packet Loss parameter measurement in the first experiment, showed the total value of the packet sent was 42 packets, and the number of bytes obtained in the time span's 728,937, amounted to 295717 bytes.

4. Throughput Test Results

The results of measuring the Throughput parameter in the first experiment, showed the total value of the packet sent was 31k Packet, and the number of bytes obtained in the time span's 42,904, amounted to 1369115 bytes.

5. Quality of Service (QoS) Measurement Results

From the Quality Of Service (QOS) measurement results in 5 trials, the average delay index value was 3.2 in the Good category, the jitter index value was 2.4 in the Medium category, the packet loss index value was 4 in the Very Good category, and an index value of 2.2 on throughput in the Medium category.

## Acknowledgment

1. Quality of Service testing on GKII Tebeng is carried out using the Wireshark application and the QoS parameters are delay, jitter, packet loss, throughput, and bandwidth.

2. The results of the Quality of Service test based on the TIPHON standard indicate that the value of the internet connection network at GKII Tebeng is categorized as moderate because the value of the delay parameter is 3.2, the jitter parameter value is 2.4, the packet loss parameter value is 4, and the throughput parameter value is 2.2 and the bandwidth parameter value is 4.5 Mbps

## Supplementary Material

Supplementary material that may be helpful in the review process should be prepared and provided as a separate electronic file. That file can then be transformed into PDF format and submitted along with the manuscript and graphic files to the appropriate editorial office.

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