Jurnal Sisfotek Global
ISSN (Online): 2721 - 3161, ISSN (Print): 2088 – 1762
DOI: http://dx.doi.org/10.38101/sisfotek.v13i1.3502
Vol. 13, No. 1, March 2023, pp. 15-19

Comparative Analysis of Brand Equity of Internet Service Providers between Indihome and Firstmedia

Muhammad Fiqih Helmi[1], Rahmat Tullah[2] & Rudi Setiyanto[3]

[1,2,3] Institut Teknologi dan Bisnis Bina Sarana Global, Tangerang, Indonesia, 15113
E-mail: [1]1118100118@global.ac.id, [2]rahmattullah@global.ac.id, [3]setiyanto.rd@global.ac.id

ARTICLE HISTORY

Received : February 28th, 2023
Revised : March 20th, 2023
Accepted : March 28th, 2023

KEYWORDS

QoS
WLAN
ISP
Brand Equity
Network

ABSTRACT

The brand with high value is called brand equity. Companies must strive to build brand equity to ensure the sustainability and growth of their business and products. The problem in RT.05 Cimone is the absence of QoS data from Internet Service Providers (ISPs) Indihome and FirstMedia circulating in the area, so the public who have not installed WLAN networks cannot determine which ISP has the best quality between Indihome and FirstMedia, which may affect their daily activities such as work from home and online classes. The data collection method used in this study was reviewing various literature such as books, journals, and other bibliographical studies. The analysis showed that the building elements for ISP brand equity between Indihome and FirstMedia were better for FirstMedia than Indihome, with a QoS inequality of service parameter of 3.75 during normal hours and 4 during busy times hours, while Indihome scored 3.5 during normal hours and 3.75 during busy hours. This research aims to identify the results and values of each QoS parameter and network brand equity in ISP Indihome and FirstMedia, and indirectly, the public can determine which ISP has good quality according to their needs.

1. Introduction

Communication is a process of conveying information from one party to another. Generally, communication is done verbally or orally and can be understood by both parties. With the advancement of time, humans are sometimes forced to communicate over long distances. This is what makes humans think of creating a tool for communication that can connect long-distance relationships, which is called telecommunications [1].

As the era of digitization develops, society slowly transforms into an "information society" because, with Information Technology, they can know anything happening right now without visiting the location. The development of information systems around the world has made people's lives easier, such as communication becoming increasingly unlimited and without barriers, both geographically and temporally [2].

A brand that has a high value is called brand equity. From the above explanations, it can be concluded that a company must try its best to build brand equity for the sustainability and development of the company and its products. It is also important for companies to build brand equity to be more recognized and acknowledged [3].

Indihome and First Media offer various service packages to customers, which are expected to provide benefits to customers[4]. However, researchers have observed various negative responses from Indihome and First Media customers, such as students who complain when their connection starts to become unstable and causes high ping and customers who are disappointed with slow handling [5].

In the dimension of brand equity, the variable of perceived quality, reflects the customer's perception of the overall quality or superiority of a product or service related to the intended purpose. An important characteristic of a brand is its position in the perceived quality dimension [6].

The problem that occurs in RT. 05 Cimone is the lack of QoS data from internet service providers (ISPs) Indihome and First Media that circulates in the community, so people who have not installed WLAN networks cannot determine which ISP has good quality to avoid hindering daily activities [7].

Therefore, it is necessary to measure and analyze the quality of internet services using Quality of Service (QoS) parameters to obtain QoS data from each ISP. QoS is a measurement method for how good the installed network is and is also an effort to define the characteristics and nature of a service [8].

To determine the QoS value, is done by analyzing data activities called sniffing. Sniffing is the process of capturing and monitoring all data packets that pass through a network[9]. To perform sniffing, an application is needed that can accurately capture data packets regarding the traffic of a network. One application that can do this is Wireshark [10].

2. Method

2.1 Research Type

The type of research developed by the author is a quantitative method [11]. The quantitative research method is used to analyze data from structured data collected following existing theories so that the data can be analyzed scientifically.

2.2 Data Collecting Method

The data collection methods used in this study by the author are as follows:

1. Interview Method

   An interview is a question-and-answer session between the researcher and respondents (head of households, customers, and others). The researcher usually brings a list of questions to be filled with the information obtained during the interview.

2. Questionnaire Method

   A questionnaire is a data collection technique that provides a set of written questions to respondents to answer, either directly or through mail or the internet. There are two types of questionnaires, closed and open. The questionnaire used in this case is a closed questionnaire, which means that the answers are already provided, so the respondents only need to choose and answer directly.

3. Research Method

   Research involves collecting data and theories by studying various materials written in books or journals.

2.3 Development Method

The methods used to support the development needs are as follows:

1. Analysis

   At the initial stage, needs analysis, problem analysis, and user needs analysis are conducted[12].

2. QoS

   A measurement method is used to determine a network's ability to provide better and planned network services to meet the needs of a service [13].

2.4 Research Object

The writer researched the RT.05 Cimone area in Cimone Village, Karawaci District, Tangerang City, Banten Province. In the RT.05 Cimone area, there are 50 households (KK). Some RT.05 Cimone community subscribes to the Internet using the Indihome provider, with 8 households, while 8 households subscribe to the Internet using the Firstmedia provider [14].

The findings suggest that the researcher provides several recommendations or inputs that can be useful in supporting services in the community and minimizing current problems. The proposed problem-solving solution by the researcher is to conduct measurements and analysis of internet service quality using Quality of Service (QoS) parameters and brand equity to obtain QoS and brand equity data from each ISP available [15].

3. Results and Discussion

3.1 Proposed Network

In this chapter, the researcher wants to recommend the proposed analysis results based on what the researcher has analyzed previously, after conducting research in the area.

3.2 Network Topology

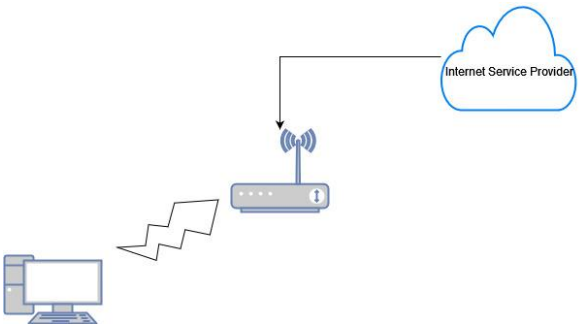

Figure 1. Topology of Proposed Network

3.3 Interface

Figure 2. Activity of Internet Interface

This display is the Internet Activity view as an initial step to retrieve and capture QoS data using the Wireshark application.

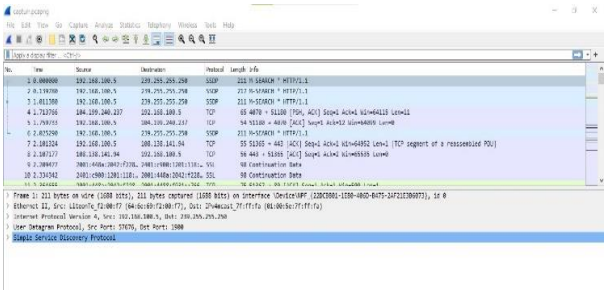

Figure 3. The interface of Wireshark Application

This display is the Wireshark application view as a second step in retrieving QoS data.

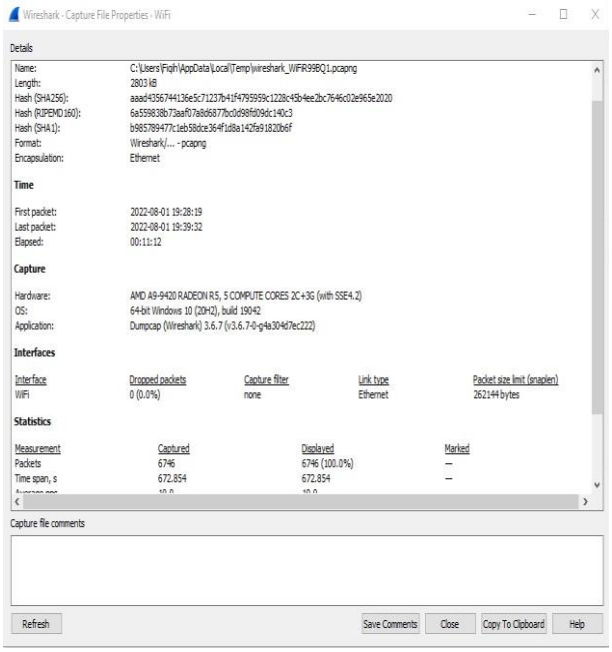

Figure 4. Capture Data

This display is the Statistics-Capture File Properties menu view used to see the summary results of the captured data.

Table 1. Result of Calculating the PacketLoss

No	ISP	House Number	Time	Sent Data	Missing Data	Packet Loss
1	Indihome	38	Busy	6727	1	1,5%
			Normal	8790	3	3,4%
2	First Media	42	Busy	7106	41	0,3%
			Normal	6200	20	0,3%

$$Packet\ Loss(\%) = \frac{Paket\ loss}{Paket\ data\ yang\ dikirim}\ x\ 100\% = \quad (1)$$

To calculate packet loss value, obtain the values of sent packet data and lost packet data (packet loss) first, and then plug those values into an equation to determine the value.

$$Delay\ \text{rata-rata} = \frac{Total\ delay}{Total\ paket\ yang\ diterima} = \quad (2)$$

Table 2. The result of Calculating Delay

No.	ISP	House Number	Time	Delay (ms)
1	Indihome	38	Busy	89,40085 ms
			Normal	68,382893 ms
2	First Media	42	Busy	13,29411554 ms
			Normal	14,17402065 ms

To calculate the average jitter value using an equation. Since calculating the average jitter using Microsoft Excel requires creating a new column called 'jitter', to obtain the total jitter value, the equation must be used to calculate the values in the 'jitter' column.

Table 3. Analysis and Result

Qos	**Normal**	**Busy**	**Normal**	**Busy**
Throughput	106 *Bytes/sec*	77 *Bytes/sec*	561 *Bytes/sec*	306 *Bytes/sec*
Packet loss	3,4%	1,5%	0,3%	0,6%
Delay	68,382893 ms	89,40085 ms	14,17402065 ms	13,29411554 ms
Jitter	5,88 ms	0,160099 ms	9,15E-06 ms	0,069988065 ms

Table 6. QoS Results According to TIPHON

Qos	**Normal**	**Busy**	**Normal**	**Busy**
Throughput	4	3	4	4
Packet loss	3	4	4	4
Delay	4	4	4	4
Jitter	3	4	3	4
TOTAL	3.5	3.75	3.75	4

Based on the results of the research and design analysis that have been conducted, the author obtained the following results:

1. During normal hours, First Media provides better throughput than Indihome.
2. During peak hours, First Media provides better throughput than Indihome.

3. During peak hours, both First Media and Indihome produce the same level of packet loss.
4. During normal hours, First Media produces excellent packet loss, while Indihome produces good packet loss.
5. During normal and peak hours, Indihome and First Media produce the same level of delay.
6. During normal and peak hours, Indihome and First Media produce the same level of jitter.

From the table above, it can be seen that the QoS value is obtained from the average index of the QoS parameters. The QoS value of Indihome ISP obtained a result of 3.5 during normal hours and 3.75 during peak hours. Meanwhile, First Media obtained a result of 3.75 during normal hours and 4 during peak hours.

4. Conclusion and Suggestion

By knowing the results and values of each QoS parameter and brand equity of the networks on Indihome and First Media ISPs, society can indirectly determine which ISP has good quality, so that daily activities are not hindered.

A suggestion to add the mean opinion score (MOS) parameter to determine the quality of service from the opinions of each respondent obtained from the questions given to each respondent. Using the additional Team Viewer application for data collection, so that researchers do not need to visit each customer's house of Indihome and First Media ISPs one by one.

References

[1] D. R. Pelealu, U. Widya, and D. Pontianak, "REVITALISASI: Jurnal Ilmu Manajemen Vol. 10, Nomor 1, Juni 2021," vol. 10, no. 2016, pp. 141–156, 2021.

[2] F. Ardianto, B. Alfaresi, and R. A. Yuansyah, "Jaringan Hotspot Berbasis Mikrotik Menggunakan Metode Otentikasi Pengguna," *J. Surya Energy*, vol. 2, no. 2, p. 167, 2018.

[3] R. Fauziansyah and I. Rachmawati, "PENGARUH BRAND EQUITY TERHADAP KEPUTUSAN PEMBELIAN (STUDI KASUS PADA PRODUK INDIHOME DI KOTA BANDUNG) THE INFLUENCE OF BRAND EQUITY ON PURCHASING DECISION (CASE STUDY ON INDIHOME PRODUCT IN BANDUNG CITY)," vol. 5, no. 3, pp. 3145–3152, 2018.

[4] F. N. Zahrah, D. Indrawati Ph, and I. T. Djatmiko, "Pelanggan Indihome Di Kota Bandung the Effect of Product Quality , Service Quality , and Price Towards Customer Satisfaction in Increasing Customer Loyalty of," *e-Proceeding Manag.* , vol. 4, no. 3, pp. 2187–2194, 2017.

[5] L. F. Wardhana, Anggita Nindya Wisnu, Yamin, Muh., Aksara, "Analisis Quality of Service (Qos) Jaringan Internet Berbasis Wireless Local Area Network (Wlan) Pada Layanan First Media," vol. 3, no. 2, pp. 49–58, 2021, [Online]. Available: http://repository.unsada.ac.id/2265/%0Ahttp://repository.unsada.ac.id/2265/3/BAB II.pdf

[6] P. R. Utami, "Analisis Perbandingan Quality of Service Jaringan Internet Berbasis Wireless Pada Layanan Internet Service Provider (Isp) Indihome Dan First Media," *J. Ilm. Teknol. dan Rekayasa*, vol. 25, no. 2, pp. 125–137, 2020, doi: 10.35760/tr.2020.v25i2.2723.

[7] P. Ravali, "A Comparative Evaluation of OSI and TCP/IP Models," *Int. J. Sci. Res.*, vol. 4, no. 7, pp. 2319–7064, 2013, [Online]. Available: www.ijsr.net

[8] Sari Nirma Narsya & Rachmawati Indira, "Pengaruh Customer Based Brand Equity Terhadap Customer Loyality Pada Operator Seluler di Indonesia.," *E-Proceeding Manag.*, vol. 4, no. 1, p. 32, 2017.

[9] S. Attamimi, A. D. Oftari, and S. Budiyanto, "Analisis QoS (Quality of Service) Pada Implementasi Layanan Broadband IPTV (Internet Protocol Television) di Jaringan Akses PT. Telkom," *J. Teknol. Elektro*, vol. 10, no. 2, p. 76, 2019, doi: 10.22441/jte.v10i2.001.

[10] A. Sofian and M. Ariyanti, "Pengaruh Quality Of Service Terhadap Brand Equity Indihome Di Bandung," *eProceedings Manag.*, vol. 3, no. 2, pp. 1492–1500, 2016.

[11] N. A. Damayanti, F. Imansyah, L. S. A. Putra, and J. Marpaung, "Analisis Quality of Service Pada Jaringan Iconnet Menggunakan Aplikasi Wireshark," *J. Tek. Elektro Univ. Tanjungpura*, vol. 1, no. 1.

[12] M. E. Sadzali, "Analisis Perbandingan Quality of Service (QOS) Jaringan 4G LTE Provider Digital Kota Tangerang," *Setrum Sist. Kendali-Tenaga-elektronika-telekomunikasi-komputer*, vol. 11, no. 1, pp. 35–49, 2022, doi: 10.36055/setrum.v11i1.15212.

[13] I. K. J. Arta and N. B. S. Nugraha, "IMPLEMENTASI APLIKASI USER MANAGEMENT HOTSPOT MIKROTIK BERBASIS PHP DENGAN APPLICATION PROGRAMING INTERFACE (API) DAN FRAMEWORK BOOTSTRAP," vol. 3, no. 1, pp. 66–71, 2020.

[14] K. P. Silooy and H. Millanyani, "Analisis Perbandingan Brand Equity Jasa Transportasi Online Pada Aplikasi Gojek Dan Grab," *eProceedings …*, vol. 8, no. 4, pp. 3076–3084,

2021, [Online]. Available: https://openlibrarypublications.telkomuniversity.ac.id/index.php/management/article/view/15294%0Ahttps://openlibrarypublications.telkomuniversity.ac.id/index.php/management/article/view/15294/15017

[15] F. Imansyah, E. Kusumawardhani, F. W. Trias Pontia, R. Ratiandi Yacoub, and J. Teknik Elektro, “ANALISIS QUALITY OF SERVICE (QoS) PADA JARINGAN INDIHOME KOTA KETAPANG,” pp. 1–8, 2022.