

ABSTRACT

COMPARISON OF QUALITY OF SERVICE (QOS) PERFORMANCE USING FIXED DAILY MEASUREMENT INTERVAL AND RANDOM SAMPLING METHOD

by

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This research's purpose is to compare the performance of Fixed Daily Measurement Intervals and Random Sampling methods by comparing their quality of service (QoS) parameters such as latency, packet loss, and throughput on individual networks.

The comparison was done using Wireshark as a data gathering tool. The data was taken for 5 days, 4 weekdays and 1 weekend on the Indihome network. On each day, there are three time ranges, morning (06.00-10.00), afternoon (10.00-14.00), evening (14.00-18.00). The data was processed using the *t*-test method with 9 hypotheses.

In this research, the author compared the two method by using the *t*-test method, and it was found that FDMI and Random Sampling had worse QoS parameters when compared to DPP, which is the control method. When all period result of FDMI was compared to Random Sampling, throughput of FDMI was classed as good by ITU-T G.114 Quality Standards with a value of 15,62 Mbps, while Random Sampling's throughput result was classed as poor by ITU-T G.114 Quality Standards with a value of 2,21 Mbps. For latency and packet loss results however, there was no difference in their classes, as both methods were classed as good with FDMI having 110 ms for its latency, and 1,19% for its packet loss, and Random Sampling having 121 ms for its latency, and 1,25% for its packet loss. This research found that it is better to use FDMI rather than Random Sampling to get a more accurate average and maximum data that is more representative of the user's experience.

Keywords : Quality of Service, FDMI, DPP, Random Sampling, *t*-Test

INTISARI

PERBANDINGAN KINERJA QUALITY OF SERVICE (QoS) MENGUNAKAN METODE FIXED DAILY MEASUREMENT INTERVAL DAN RANDOM SAMPLING

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Tujuan penelitian ini adalah untuk membandingkan performa metode *Fixed Daily Measurement Interval* dan *Random Sampling* dengan membandingkan *Quality of Service* (QoS) seperti *latency*, *packet loss*, dan *throughput* pada masing-masing jaringan.

Perbandingan dilakukan dengan menggunakan Wireshark sebagai alat pengumpulan data. Pengambilan data dilakukan selama 5 hari, 4 hari kerja dan 1 akhir pekan di jaringan Indihome. Setiap hari ada tiga rentang waktu, pagi (06.00-10.00), sore (10.00-14.00), sore (14.00-18.00). Data diolah menggunakan metode uji-t dengan 9 hipotesis.

Dalam penelitian ini penulis membandingkan kedua metode tersebut dengan menggunakan metode uji-t, dan ditemukan bahwa FDMI dan Random Sampling memiliki parameter QoS yang lebih buruk jika dibandingkan dengan DPP sebagai metode kontrol. Jika hasil semua periode FDMI dibandingkan dengan Random Sampling, *throughput* FDMI digolongkan baik menurut Standar Mutu ITU-T G.114 dengan nilai 15,62 Mbps, sedangkan hasil *throughput Random Sampling* digolongkan buruk oleh ITU-T Standar Kualitas G.114 dengan nilai 2,21 Mbps. Untuk hasil *latency* dan *packet loss*, tidak ada perbedaan dalam penggolongannya, karena kedua metode digolongkan baik dengan FDMI yang memiliki nilai 110 ms untuk *latency*, dan 1,19% untuk *packet loss*, sedangkan Random Sampling memiliki nilai 121 ms untuk *latency*, dan 1,25% untuk *packet loss*. Penelitian ini menemukan bahwa lebih baik menggunakan FDMI daripada *Random Sampling* untuk mendapatkan data rata-rata dan maksimum yang lebih akurat yang lebih mewakili pengalaman pengguna.

Kata kunci : Quality of Service, FDMI, DPP, Random Sampling, *t*-Test