

# ANALISIS *QUALITY OF SERVICE* (QoS) TRAFIK MULTIMEDIA PADA *WIRELESS LOCAL AREA NETWORK* DI LABORATORIUM TEKNIK ELEKTRO UPN VETERAN JAKARTA MENGGUNAKAN WIRESHARK DAN PRTG

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## ABSTRAK

Pemantauan (*monitoring*) dan pengukuran *Quality of Service* (QoS) dan *Quality of Experience* (QoE) merupakan metode dalam penilaian dan peningkatan kualitas layanan telekomunikasi, terutama pada area dengan banyak pengguna seperti Laboratorium Teknik Elektro UPN Veteran Jakarta. Berdasarkan hasil survei, banyak kendala yang dialami oleh pengguna Wi-Fi terkait ketersediaan, aksesibilitas, ketahanan, maupun kestabilan layanan aplikasi multimedia yang diakses. Dalam penelitian ini dilakukan analisis parameter QoS terhadap tiga aplikasi multimedia, yaitu: WhatsApp Desktop Call, Zoom Meeting, dan web LeADS UPNVJ. Pengumpulan data dilakukan menggunakan aplikasi Wireshark dan PRTG, serta web panel admin router dan Command Prompt. Berdasarkan hasil *monitoring*, jaringan dapat mengalami penurunan kualitas ketika dikoneksikan dengan lebih dari 5 perangkat secara bersamaan, kondisi *downtime* cukup sering terjadi bisa mencapai 54% dalam sehari, dan rata-rata jumlah trafik yang melintas pada satu perangkat sebesar 4,34 Mbps. Berdasarkan pengukuran dan perhitungan rata-rata parameter QoS, nilai *throughput* tertinggi mencapai 102,09 Kbps pada web LeADS UPNVJ, nilai *delay* terburuk mencapai 521,39 ms pada WA call, nilai *jitter* mencapai 1,21 ms pada WA Call, dan nilai *packet loss* mencapai 2,16% pada Zoom Meeting. Kendala yang paling sering dialami yaitu tidak adanya internet pada jaringan Wi-Fi. Solusi dalam mengoptimalkan jaringan ini dapat dilakukan dengan pengaturan administrasi dan manajemen jaringan.

**Kata Kunci:** *Quality of Service* (QoS), *Quality of Experience* (QoE), Wi-Fi, Trafik Jaringan, Aplikasi Multimedia, Wireshark, PRTG.

**ANALYSIS OF QUALITY OF SERVICE (QoS) MULTIMEDIA  
TRAFFIC ON WIRELESS LOCAL AREA NETWORK IN  
ELECTRICAL ENGINEERING LABORATORY UPN VETERAN  
JAKARTA USING WIRESHARK AND PRTG**

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**ABSTRACT**

*Monitoring and measuring Quality of Service (QoS) and Quality of Experience (QoE) is a method to assess and improve the quality of telecommunication services, especially in areas with many users such as the Electrical Engineering Laboratory of UPN Veteran Jakarta. Based on the survey results, many problems experienced by Wi-Fi users are related to the availability, accessibility, retainability, and stability of the multimedia application services accessed. In this research, the analysis of QoS parameters was carried out for three multimedia applications: WhatsApp Desktop Call, Zoom Meeting, and the UPNVJ LeADS web. Data collection was carried out using Wireshark and PRTG, as well as the router admin panel web and Command Prompt. Based on monitoring results, the network can experience a decrease in quality when connected to more than 5 devices simultaneously, downtime conditions occur quite frequently, reaching 54% in a day, and the average amount of traffic that passes on one device is 4,34 Mbps. Based on measurements and average calculations of the QoS parameters, the highest throughput value reaches 102,09 Kbps on UPNVJ LeADS web, the worst delay value reaches 521,39 ms on WA call, the jitter value reaches 1,21 ms on WA Call, and the packet loss value reaches 2,16% on Zoom Meeting. The most common problem experienced is the no internet condition on the Wi-Fi network. The solution for optimizing this network can be done by administration setting and network management.*

**Keywords:** *Quality of Service (QoS), Quality of Experience (QoE), Wi-Fi, Network Traffic, Multimedia Application, Wireshark, PRTG.*