

## ABSTRACT

*Fiber To the Home (FTTH) is one of the subjects in the Technical Competence of Telecommunication Access Networks (TJAT) at SMK Telkom Bandung. FTTH in its implementation can provide broadband services in the form of triple play (voice, data, video) on the customer side or Customer Premises Equipment (CPE) where this CPE is in reality a Local Area Network (LAN). For large customers such as offices, campuses, and others, it is often necessary to have a telephone communication facility internally, which in the past used a Private Branch Exchange (PBX) center as a connection center with the telephone, called an extension. At present the central PBX is being replaced by an IP-based server known as an IP PBX. There are two types of IP PBX, namely proprietary IP PBX with special designs both hardware and software, and open-source IP PBX. which uses a public computer in the form of a server/laptop PC/desk PC with a windows linux operating system with open-source applications such as Asterisk, Trixbox etc.*

*In this final project, a VoIP learning facility is built in the IP PBX lab using a laptop PC as a Linux-based server using the Tricbox application. The lab is also equipped with supporting devices to access IP PBX servers such as switches and access points (APs) with 3 types of VoIP clients, namely IP phones, soft phones and smart phones that use the linphone application.*

*PC to Laptop VoIP connection throughput: 83.17 kbps, Packet Loss: 0.29 %, delay: 20.63 ms, Jitter: 0.00234 ms, and MOS: 3.4. Laptop to IP Phone throughput: 66.07 kbps, Packet Loss: 0.28 %, delay: 25.9 ms, Jitter: 0.00234 ms, and MOS: 3.4. Laptop1 to Laptop 2 throughput: 73.5 kbps, Packet Loss: 0.81%, delay: 27.9 ms, Jitter: 0.00897 ms, and MOS: 3.3. Laptop 2 - Smartphone throughput: 54.97 kbps, Packet Loss: 0.73 %, delay: 26.67 ms, Jitter: 0.00782 ms, and MOS: 3.3. Laptop 1 - Smartphone throughput: 85.6 kbps, Packet Loss: 0.97%, delay: 29,097 ms, Jitter: 0.00982 ms, and MOS: 3.*

**Keywords:** Network, Trixbox, VoIP.