ABSTRACT

A stable and reliable internet connection is a vital element in supporting a company's digital operations, especially in sectors that rely on online services and real-time communication. At PT Kereta Cepat Indonesia China (KCIC), ISP connection performance monitoring was previously done manually without regular independent verification, making it difficult for the IT team to quickly detect network performance degradation. As a solution, a bandwidth monitoring system based on the MikroTik RouterBoard RB941-2nD-TC was developed and implemented separately from the main network (standalone). This system combines active monitoring using the /tool bandwidth-test feature with passive monitoring through calculations of RX/TX bytes from network interfaces. Additional features include Netwatch for connection status monitoring, SNMP integration with PRTG Network Monitor for real-time data visualization, and automatic notifications to the Telegram app to expedite responses. Implementation results show that the system successfully sent automatic notifications to Telegram with a 100% success rate during testing, including for low bandwidth detection, internet connection status (down/up), and PRTG alert integration. The monitoring data obtained helps the IT team identify connection anomalies more quickly and efficiently. The system has proven capable of providing real-time and periodic connection performance information, as well as serving as an initial evaluation tool for ISP service quality. With this system, troubleshooting processes become more responsive and data-driven.

Keywords: Bandwidth Monitoring, MikroTik, Telegram Bot, SNMP, PRTG, Internet Connection.