ABSTRACT

A reliable network is a key requirement for telecommunication companies such as PT ABC in Yogyakarta to support its digital activities. High network complexity and limited administrator manpower are challenges in ensuring optimal network performance. To overcome this, a Network Monitoring System based on Zabbix and Grafana is implemented to monitor the performance of the switch core which is the core of network traffic, by monitoring parameters such as bandwidth, CPU, and memory. This system is integrated with the Telegram application to provide real-time alert notifications. Monitoring was conducted for 7 days, with traffic analysis showing significant differences between peak hours (08.00-17.00) and free time (18.00-07.00). The monitoring results showed the highest backup receive bandwidth value of 72.4 Mb/s and the highest backup sent bandwidth value of 6.12 Mb/s on December 24, 2024, while the lowest values were 0.26 Mb/s for backup receive bandwidth on December 25 and 0.026 Mb/s for backup sent bandwidth on December 26, respectively. CPU usage stabilized at 1%, while memory usage was 0.26 GiB with 1.02 GiB remaining. Results The system also managed to provide accurate alert notifications related to link down as well as bandwidth, CPU, memory, and temperature parameters that exceeded the threshold. This proves that the system used is effective in ensuring network performance is monitored and maintained.

Keywords: Grafana, NMS, Switch, Telegram, Zabbix