ABSTRACT

Alongside the rapid advancement of information technology, the demand for efficient and high-speed networks has been escalating. One approach to achieving this is by employing the Border Gateway Protocol (BGP), a routing protocol utilized to interconnect large and complex networks. However, configuring and setting up networks using manual methods to configure the BGP routing protocol can become exceedingly intricate and time-consuming. Hence, a solution that simplifies this process is essential, and one such solution involves network automation. The aim of this research is to analyze, simulate, and compare the automation tools Ansible and Paramiko for configuring the BGP routing protocol. The research scenario involves simulating six routers, one switch, two VPCS units, and a Docker Network Automation container using GNS3 and Wireshark software. Through the testing scenario, analysis and comparison were conducted, revealing an average configuration script transmission time of 256.17 seconds for Ansible, whereas Paramiko achieved an average of 131.62 seconds. For network convergence time, Ansible yielded an average ping time from client 1 to client 2 of 258.98 seconds, while Paramiko achieved an average of 216.76 seconds. In terms of delay, Ansible had an average of 0.04 ms, compared to Paramiko's average of 0.01 ms. As for throughput, Ansible averaged at 3.1 Kbps, whereas Paramiko averaged at 7.56 Kbps

Keywords: *Ansible Automation,* Paramiko *Automation, BGP Routing Protocol, GNS3, Wireshark.*