ABSTRACK

The rapid development of network devices presents challenges in router configuration. Manual configuration of network devices is time-consuming and prone to errors, especially on a large scale. This research proposes a web-based network automation solution using the Django framework and the Paramiko library. Paramiko is used to connect the server with network devices through the SSH protocol, while Django displays dynamic web pages. This study measures the configuration command execution time and analyzes the Quality of Service parameters for both protocols in two scenarios: normal network conditions and disruption conditions with the disconnection of three main router interfaces. The configuration execution time for OSPF and EIGRP on routers differs. EIGRP configuration requires an average of 3.438 seconds, while OSPF requires an average of 4.037 seconds. This time difference is due to the larger configuration data size for OSPF compared to EIGRP. The QoS measurement results show that both protocols provide excellent performance. In normal scenarios, EIGRP has a throughput of 4.995 Mbps and OSPF 3.932 Mbps; both have a packet loss of 0.106%; EIGRP delay is 1.536 ms and OSPF 1.916 ms; EIGRP jitter is 0.001 ms and OSPF 0.002 ms. In disruption scenarios, EIGRP throughput drops to 3.148 Mbps and OSPF 2.37 Mbps; EIGRP packet loss is 0.106% and OSPF 0.104%; EIGRP delay is 2.345 ms and OSPF 3.280 ms; EIGRP jitter is 0.001 ms and OSPF 0.004 ms. These results indicate that both protocols can maintain excellent performance under disruption conditions. Overall, EIGRP and OSPF can provide satisfactory performance in managing networks under both normal and disruptive conditions.

Keywords: EIGRP, Django, OSPF, Paramiko, SSH.