

ABSTRACT

Currently the protocol that is often used is IPv4. IPv4 has the limitation that it can only accommodate 4.3 billion users. Sooner or later the use of IPv4 is getting limited. So the IETF developed IPv6 which can accommodate 2¹²⁸ users. There are several routing protocols that can be used in IPv6. Some of them are EIGRP (Enhanced Interior Gateway Routing Protocol) using the DUAL algorithm (Diffusing Update Algorithms), IS-IS (Intermediate System-to-Intermediate System), and OSPFv3 (Open Shortest Path First version 3) which uses a link-state algorithm.

Graphical Network Simulator 3 (GNS 3) is used to simulate the EIGRP, IS-IS, and OSPFv3 routing protocols with a mesh topology. Testing is done using 5 routers, 1 server and 2 clients. The parameters used are packet loss, throughput, delay, jitter, and convergence time. With a traffic background of 25 Mbps, 50 Mbps, 100 Mbps, and 150 Mbps.

This final project shows that the IS-IS routing protocol has good results on data services with a delay of 2.971 ms, video streaming with a delay of 0.021 s, and a convergence time of 30.60 s. Meanwhile, the EIGRP routing protocol has good results on VoIP services with a delay of 13.56 ms.

Keywords: *IPv4, EIGRP, IS-IS, OSPFv3, Triple Play.*