

ABSTRACT

Network interconnection is communication between the elements, in this case, a router, to exchange information about the network topology. Routing protocols play a role in the process of exchanging information. Routing protocol has a very important function on the network, because it enabled every router in the network knows a valid and optimal route to a network. Therefore, the existence of a routing protocol that can be converged rapidly and stable is needed, so that if there is a change in network, the performance decrease could be reduced to a minimum. OSPFv3 and IS-IS routing protocol are widely used in IPv6. Both routing protocols are included in the link state class.

At the end of this task, the implementation of both protocols on a single autonomous system using emulation software GNS3 with Cisco IOS 12.4 (16) 3640 chassis is done, including convergencing time analysis on both protocol. Parameter that is used as the measurement tools is event detection, SPF execution time, throughput and packet lost. Event detection parameters and SPF execution time are performed by white boxes method, while the throughput parameters and packet lost are carried out by the black box method.

On the event detection measurements, OSPFv3 event detection time is obtained faster than IS-IS. On a SPF execution time measurement, IS-IS has a processing time for 19 ms for network up and 18.8 ms for network down, while OSPFv3 process got 32.3 ms for network up and 28 ms for network down. On a throughput and packet lost measurement, the IS-IS has a throughput in about 35.78 Kbps and packet lost is around 53.33%. As for OSPFv3, it has a throughput 48.37 Kbps and packet lost around 26,67%, with CPU load for OSPF about 78% and IS-IS about 85.9%.

Keywords: convergence time, OSPFv3, IS-IS, IPv6, routing protocols.