

## Abstract

Computer network keeps getting significant improvement. This vast computer network service that can be accessed via the internet. Communications peripherals can get into the internet and communicate with each other using IP (Internet Protocol). And IP that commonly used today is Ipv4 addressing.

However, the growth of computer networks is inversely proportional to the capacity of available IPv4 network. To meet the demand for IP addresses, they created IPv6 that could provide the IP addresses of up to  $2^{128}$  addresses. And just like IPv4, to communicate with each other, IPv6 also need a routing protocol that is able to route the IP address.

The new routing protocol that was created to serve the Ipv6 are RIPng (Routing Information Protocol Next Generation) and the IPv6 EIGRP (Enhanced Interior Gateway Routing Protocol), the routing protocol implemented the distanced-vector algorithm, which means determines a route based on the distance, but EIGRP uses a more advanced distanced vector algorithm, which is by calculating bandwidth as one of route selection requirements.

In this final project, will be analyzed performance of both of the routing protocols that being used with using parameter conducted implementations and Ipv6 RIPng routing protocols and EIGRP on a single autonomous system using GNS3 emulator with Cisco IOS C7200 servicesk9-mz.124-22.T that already support Ipv6.

And in this final project will be analyzed the performance of both routing protocols that being used, with parameters : time to convergences, packetloss, throughput, and delay end to end. From the emulation. For the time to convergence EIGRP is better than RIPng, EIGRP only needs 12 second and RIPng needs 225 second. For packetloss testing, while time to convergence, EIGRP only loss 4% packet and RIPng loss 37% packet, it has been over of ITU G.107 standard that said packetloss still safe less than 20%.

For throughput testing, EIGRP still better than RIPng in all scenario, but for the delay parameter, the RIPng is better.

**Key words:** RIPng, EIGRP, IPV6, convergence time