ABSTRACT

Today, computer networks is growing very fast. The Internet provides a big change in the exchange of information between computers. Communications equipment may get into the Internet network and interact with each other using the Internet Protocol (IP). Router, with routing protocol can route to the destination IP address.

Network based IPv4 addresses are running out. This encourages created IPv6 with addresses are 128 bits long, or can provide the address of the IP address is 2^{128} IP address. These developments also make some changes in routing protocols. *Routing Information Protocol* (RIP) is included in the *Interior Gateway Protocol* (IGP) with *distance vetor* routing algorithm selection created *the Routing Information Protocol Next Generation* (RIPng) that an be applied to the IPv6 network. On the other hand, there is also *a link state* routing selection algorithm which determines the route was not based on distance, but based on the information network conditions (*bandwitdh, traffic, delay, etc.*). One link state protocols is Intermediate System to Intermediate System (IS-IS).

Overall, the simulation results show that based on the parameters measuring the throughput, delay end to end, delay variation, and packet loss, IS-IS protocol provides better results than the RIPng protocol. Time to convergece of IS-IS protocol is faster than the RIPng protocol.

Key words: RIPng, IS-IS, IPv6