ABSTRACT

In principle the router is a device which enables to connect between two or more network. There is three category or routers, which are: default router, static router and dynamic router. Among three categories, the dynamic router is able to fulfill high scale network maintenance. On the top of that, there are three characteristic of dynamic routing, which are divided into distance-vector, link state and hybrid. The link state routing category is able to accomplish the network maintenance dynamically among those three. We categorize the link state routing protocol into two characteristic, which are OSPF (Open Shortest Path First) and IS-IS (intermediate system to intermediate system). OSPF is the mostly applicable routing protocol.

In this final project, it is to be understood the method of choosing the suitable path based on OSPF characteristic. We simulate the path update process in OSPF routing protocol. We also design the topology which use the dynamic router involved OSPF routing and use three kind of area, which are, area 0, area 1, and area 2. DR (designate route) and BDR (backup designate router) are also showed.

Through the simulation result, we show that OSPF is able to search the alternative path when another path down. OSPF also able to choose the routing path which provides the lowest matrix cost. The matrix cost value is inversely proportional with bandwidth allocation. On the other hand, the choosing method of routing path is determined by placing the area in the corresponding topology. The bandwidth of the router which place in same area from the initial router to the destination router is larger than the bandwidth from the same different area with the destination router.

Index term: OSPF, Dynamic Router, Routing protocol, Cost matrix, Area, Bandwidth, DR, BDR