

Evaluation of OSPF and EIGRP Routing for Network

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ABSTRACT

OSPF (Open shortest Path First) routing protocol is an advanced routing protocol which use link state routing and Dijkstra shortest path. EIGRP (Enhanced Interior Gateway Routing Protocol) is a progress interval transmitter routing protocol which is used in a computer network for automated routing decisions and configuration. Evaluation of these outcomes shows that OSPF routing is less efficient than EIGRP for real time applications. That's why EGRIP is a greener router protocol. It perform the Project on dynamic routing in which I have briefly discussed. OSPF is an Open Normal Directing Procedure that can be used for a small organization as well as large multi-national companies. The Open Shortest Path First (OSPF) routing protocols major use in today as Internet compute a shortest path tree (SPT) from every router to other routers in a routing place. This vast protocol uses Dijkstra Algorithm for operations that helps in finding the shortest path from foundation to destination. Comparative Experiments exhibit that the proposed algorithm can successfully better the network performance in form of energy consumption, delay, and packet delivery rate.

Keywords: OSPF; EIGRP; convergence time

INTRODUCTION

Many protocols are used for same purpose but they have different metrics. There are different classifying routing protocols

Enhanced interior Gateway Routing Protocol

EIGRP (Enhanced IGRP) is a low class, augmented range technique that leverages the idea of an automated vehicle to define a collection of adjacent strategies that interconnect network data and run the very same routing algorithm

The main purposes of the proposed project are:

- shape EIGRP active directing protocol
- shape OSPF active directing protocol

Learning about OSPF Areas

EIGRP considers it in its routing modifications. EIGRP is frequently stated to as a cross directing procedure. EIGRP, for instance, does not provide connection packet like OSPF does; instead, it delivers standard range refreshes including connectivity as well as the price of accessing them from the marketing router's standpoint. EIGRP also has connection properties: it integrates routing across neighbors at start and only delivers particular changes when higher part. As a result, EIGRP is ideal for extremely large networks. EIGRP has a variety of unique characteristics that set apart from other systems.

Open Shortest Path First (OSPF)

It is used in several network providers having Cisco because it is a navigation exposed system terminology. We can't use EIGRP if we have many routers and not all of them are Cisco. RIP, RIPv2, and OSPF are our only remaining options. If it's a vast system, our only choices are OSPF and somewhat dubbed path dispersal, which is a technology translation service.

The Optimal solution is used by OSPF. The best routes are then loaded into the forwarding table after constructing a shortest path. OSPF converges rapidly, though not as quickly as EIGRP, and it allows for many, equitable routes to the very same location. Because OSPF would be most person's first introduction to connection routing algorithms, it's nice to analyze it to more old-style detachment-trajectory procedures like RIPv2 and RIPv1.

Related Work

On data network routing problem, continuous research is going on for last three decades. The stability issues in Internet routing have attracted much attention. The work proves a lower bound complexity for the worst-case scenario.

Connections

There are many types of connections some are given below.

- OSPF (Shortest path first protocols)
- EIGRP (Enhanced interior gateway protocol)

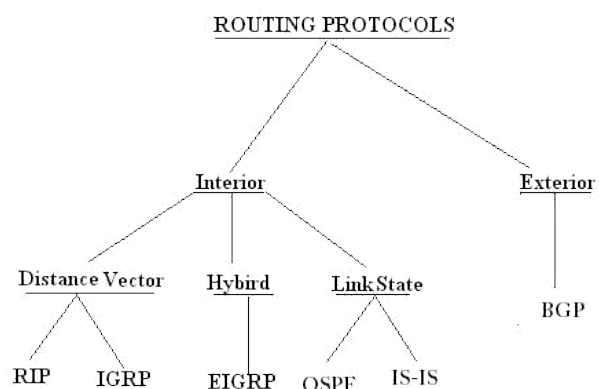


FIGURE 1: Routing protocol classification

Open Shortest Path First (OSPF)

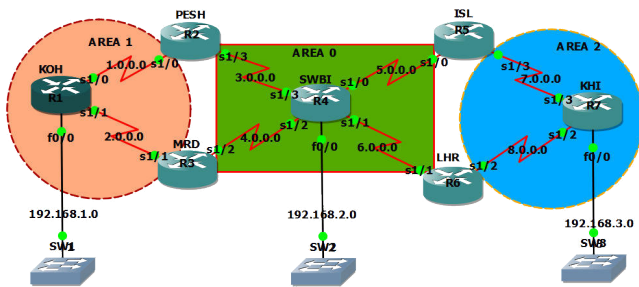


FIGURE 2: Scenario of Ospf Topology

Scenario of Improved Inner Gateway Routing Protocol (Eigrp)

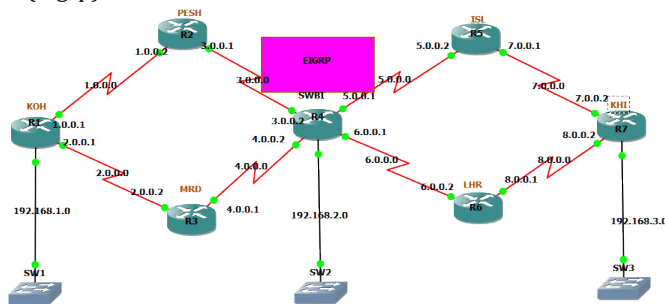


FIGURE 3: Scenario of EIGRP Topology

Configuring OSPF

Using a single place is the simplest flexible technique to configure OSPF. This necessitates the use of at least two instructions. The up with the strategy is used to start the OSPF route discovery:

```
Router ospf? Router (config) # <1-65535>
```

Configuring OSPF Areas

After you've identified the OSPF activity, you'll have to figure out where the interface you would like to enable OSPF talks on, and where each one is located. It will set up the groups you'll be promoting to others. In its design, OSPF makes use of playoff spots, which are also utilized in network level settings (enclosed in Section thirteen). Here's an instance of an OSPF setup:

Routers #config t

Routers (config) # router ospf 1

Routers(config-router) #network 10.0.0.0 0.255.255.255 zone

<0-4294967295>OSPF area ID as a decimal value

A.B.C.D OSPF area ID in IP address format

Routers(config-routers) #system 10.0.0.0 0.255.255.255area 0

EIGRP Configuration

Routing (config) #router eigrp independent arrangement_#

Routing (config-router) #network IP network_#

Autonomous System

A system below the similar practical management is named independent structure. Independent structure varieties from 1-65535.

Community independent structures variety is 1-64511

Personal independent structures vary is 64512-65535

RESULT AND DISCUSSION

Routing Protocol is that protocols which select finest path for routed protocols. For RIP, EIGRP, OSPF etc. For instance, when bus is travelling then we select finest track that go on this path it is near and good road and free from transportation etc.

If there is minor network, then we used static routing when there is big network then we used dynamic routing protocols. What is a benefit of active directing procedures? The advantage is that when the alteration happens in the systems then the Routing inform the other router that alteration occurred. Other benefit is that when innovative system adds to the router then no need of to give route to the entire router but just show to own.

In a scenario there are multiple routes on which the data flow if one route out of these fails to pass traffic so how much time the situation shot to direct the traffic to another route in system is called convergence time.

Convergence Timing

In a scenario there are multiple routes on which the data flow if one route out of these fails to pass traffic so how much time the situation shot to direct the traffic to another route in system is called convergence time. The path followed by a packet to travel from router number 1to router 7

OSPF Graph

And the graph for this result is ...

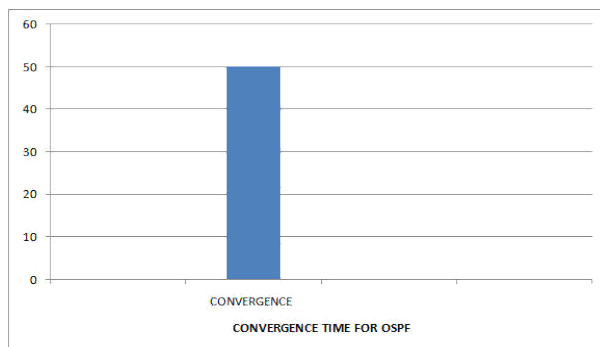


FIGURE 4: showing the OSPF time convergence

```
000#traceroute 192.168.3.1
Type escape sequence to abort.
Tracing the route to 192.168.3.1
 0 2.0.0.2 72 msec
 1 1.0.0.2 45 msec
 2 2.0.0.2 32 msec
 3 3.0.0.2 46 msec
 4 4.0.0.2 60 msec
 5 3.0.0.2 54 msec
 6 5.0.0.2 116 msec 112 msec 120 msec
 7 7.0.0.2 124 msec 152 msec 118 msec
000#
```

EIGRP Graph

And the graph for this result is ...

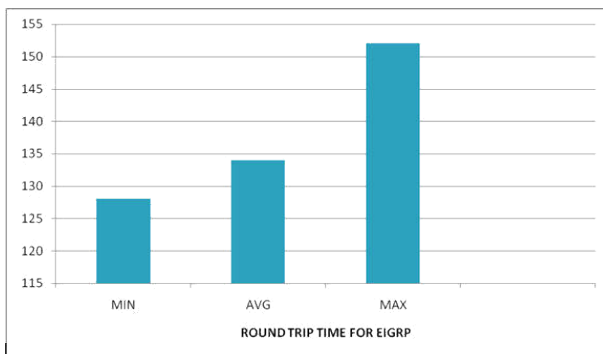


FIGURE 5: showing the EIGRP time convergence

```

Tracing the route to 192.168.0.1
 0 2.0.0.1 86 msec
 1 0.0.0.40 msec
 2 0.0.0.44 msec
 3 0.0.0.48 msec
 4 0.0.0.500 msec
 5 0.0.0.86 msec
 6 0.0.0.2 160 msec 136 msec 130 msec
 7 0.0.0.2 224 msec 128 msec 148 msec

```

CONCLUSION

In dynamic routing project we used EIGRP and OSPF. Routing Procedure which achieves outstanding role in system. In dynamic routing when one link down the other is automatically up. If there is minor network, then we used static routing when there is big network then we used dynamic routing protocols. OSPF offers more efficient path choice and convergence speed. OSPF is the most widely used but it is not the only choice. With that said, it is the most standardized IGP and that allows for optimal vendor interoperability. OSPF is primarily used for internal routing because it's a link-state routing protocol. In comparison the best protocol is EIGRP than OSPF because it performs best convergence time.

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