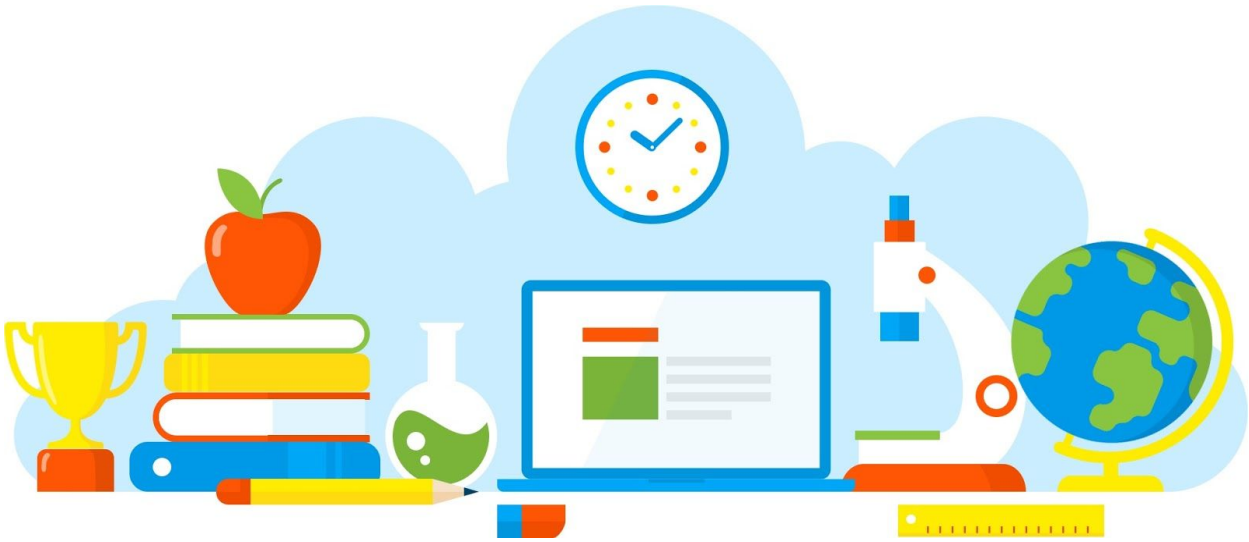

Assignment Report

*This report contains work from **Assignment 6** of course CSN 361.*

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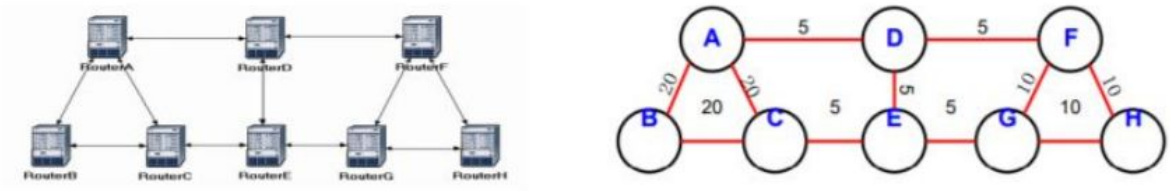
Class - CSE B.Tech. 3rd Year

Submission Files - Repository Link

QUESTION 1:

Use OPNET to implement OSPF (Open Shortest Path First) protocol. Create a scenarios: Scenario1, of 8 routers of any type (e.g., slip8_gtwy) and configure the Network topology and the Link costs as shown in Fig. 1(a) and Fig. 1(b) respectively.



(a) Network topology (b) Link costs

Fig. 1 Configuration of the network *Scenario1*

Create a duplicate scenario – Scenario2, where the routers in Scenario1 are partitioned into 3 different areas as follows (Fig 2):

Area1: RouterA, RouterB, RouterC

Area2: RouterD, RouterE

Area3: RouterF, RouterG, RouterH

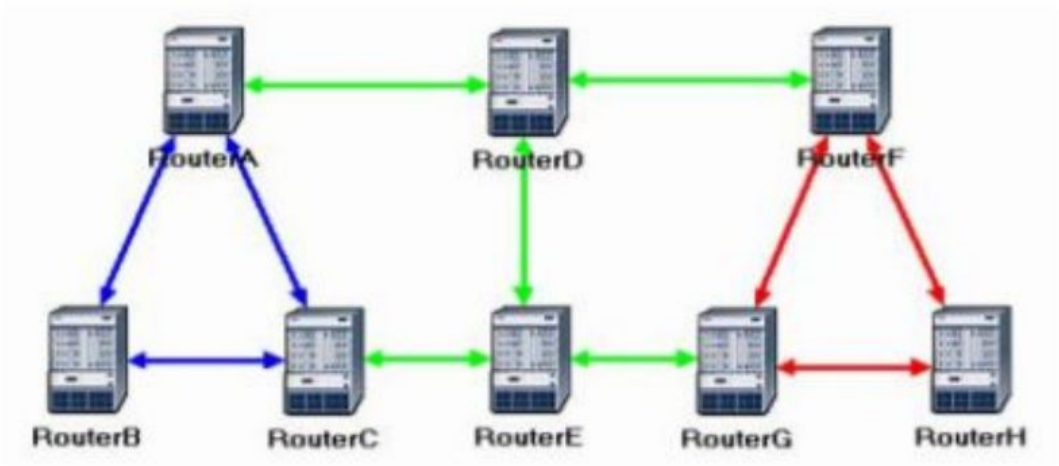


Fig. 2 Configuration of the network for *Scenario2*

Display the route for the traffic demand between RouterA and RouterC in Scenario1.
Display the route for the traffic demand between RouterA and RouterC in Scenario2.

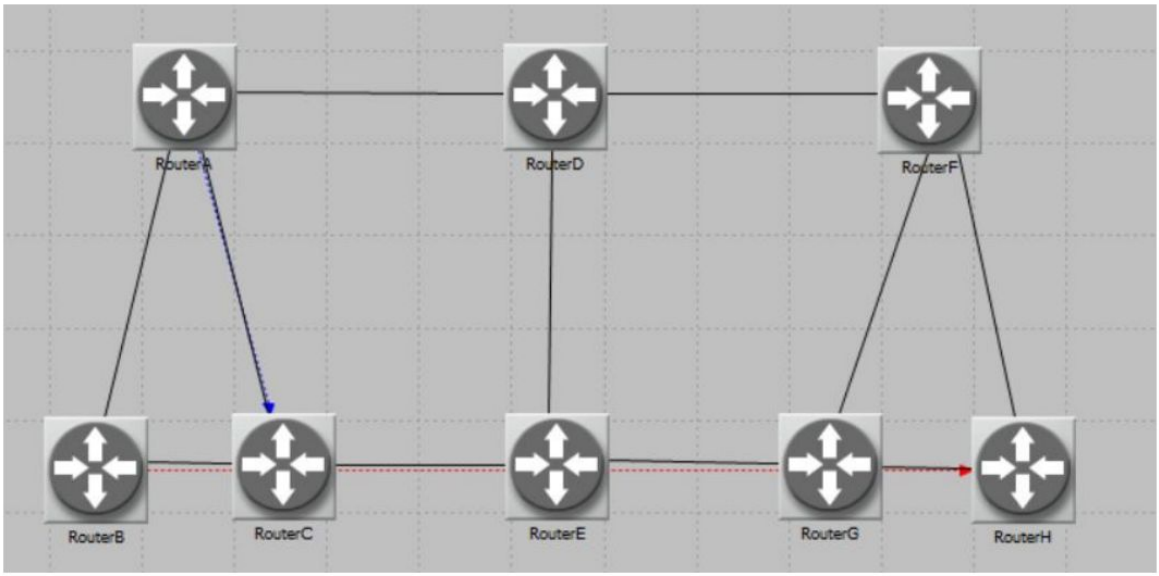
SOLUTION:

In a new OPNET project, 8 routers of the type slip8_gtwy were added. The required topology was created using PPP_DS3 internet links.

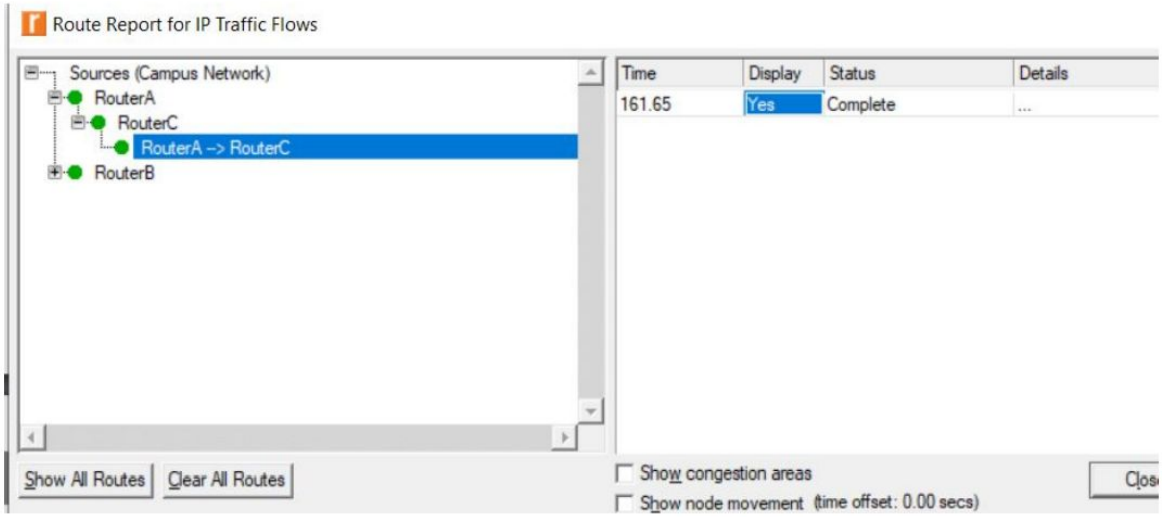
The weights were configured using the formula:
Cost = (Reference bandwidth) / (Link bandwidth)

A traffic link was created from the RouterA, and the protocol set to OSPF. The scenario was duplicated for adding the areas. The areas were added using the links and assigning values like 0.0.0.1 to the area identifier in OSPF -> Configure Areas.
Both the scenarios were run and the output recorded as follows:

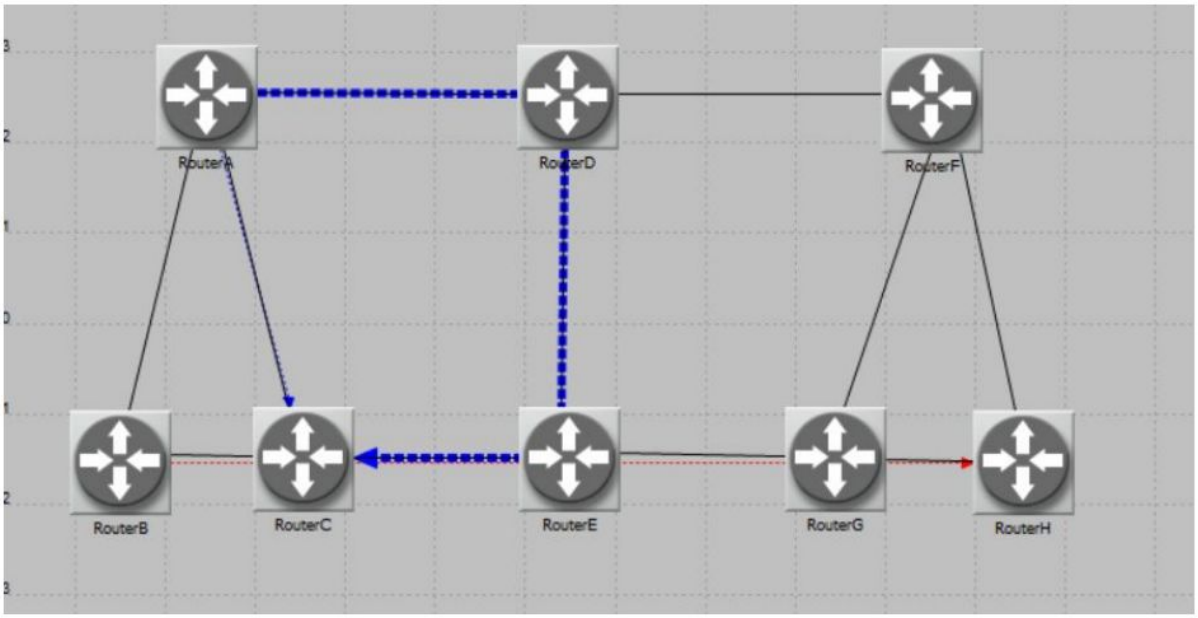
Traffic demand links:



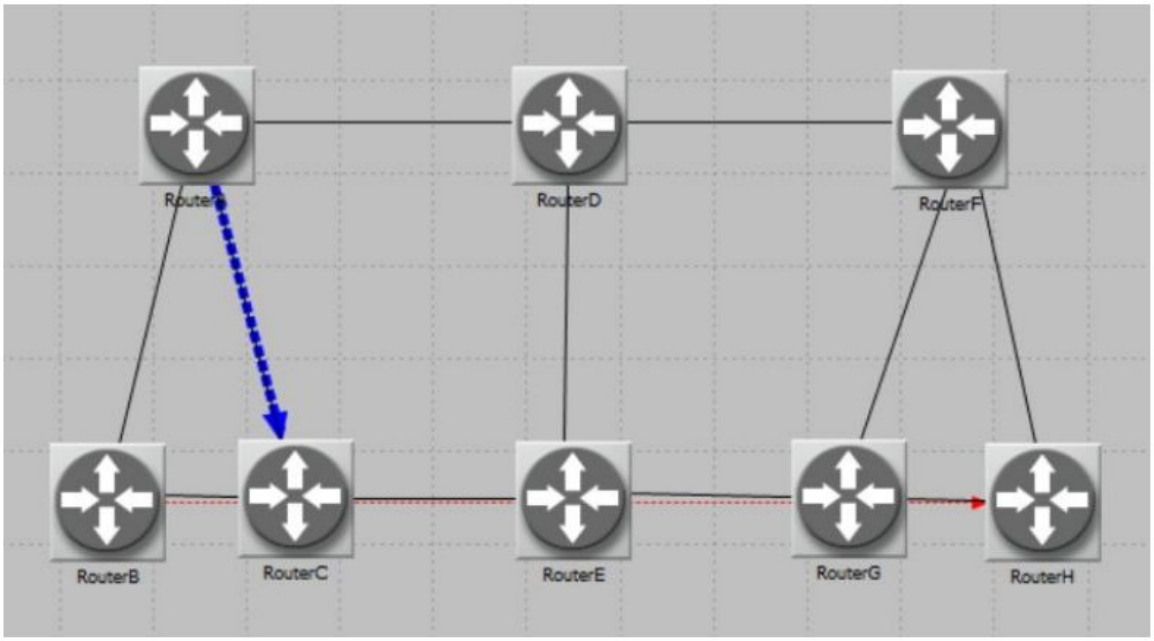
To view the demand from A to C:



Scenario 1 (No area distinction):



Scenario 2 (With defined areas):



QUESTION 2: Use OPNET to implement RIP (Routing Information) protocol on the same network configurations as given in Problem 1.

Display the route for the traffic demand between RouterA and RouterC in Scenario1.

Display the route for the traffic demand between RouterA and RouterC in Scenario2

SOLUTION: In the above mentioned scenarios, the IP routing algorithm was changes to RIP and the results recorded for the simulation. Unfortunately, OPNET does not provide an option to configure areas for RIP protocol.