TASK-2

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NS-2

Simulation parameters for Task1

- Access-link bandwidths – 100 Mbps
- Bottleneck-link bandwidth – 10 Mbps
- Access-link delays – The access link delays of the four delay classes should range from 10 ms to 100 ms with 30 ms spacing.
- Bottleneck-link delay – 10 ms
- Queue limits: Use 1000 packets for the bottleneck queue and 1000 packets for the access

queues. The idea is that the packet losses should be caused mainly by the artificial loss module, not by small queues.

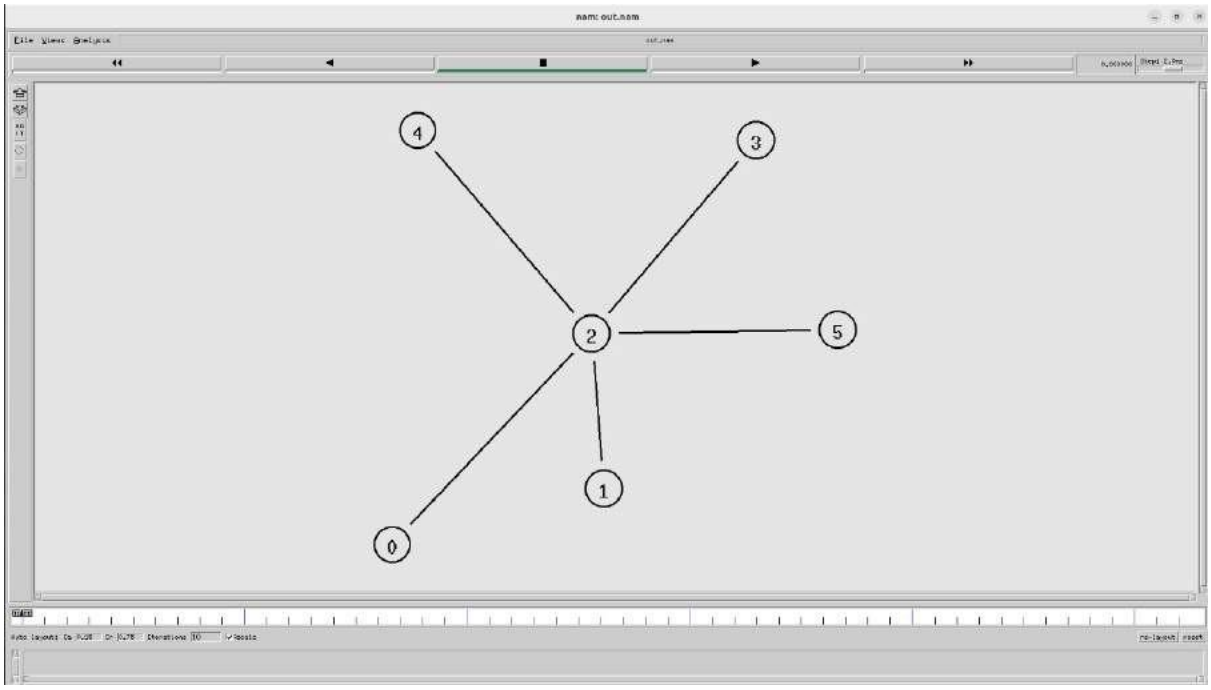
- Flow-level load: 0.8 (you can vary this also if you want to do extra!)
- Packet loss in the loss module: Use six different values for p: [0.1, 0.5, 1, 2, 4, 5] %

used the code for flow generation in a main method and setted up the flow for simulating the network for task 1 :
Below link contains all the tcl scripts required to generate the simulation.
https://github.com/vishnu803/Network-Simulator

$$(11) \quad T_k = \frac{B}{W_k}.$$

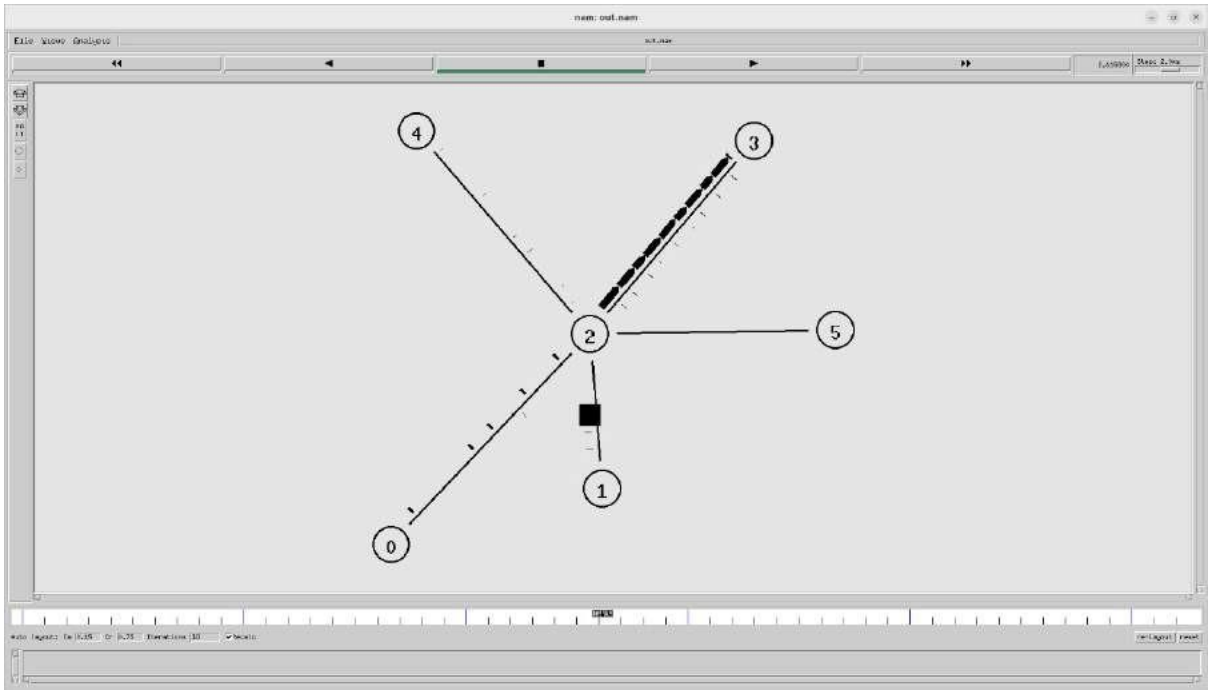
$$(9) \qquad W_k\left[1-\sum_{j=1}^{M}\frac{\lambda_j}{\mu_j+\mu_k\dfrac{g_k}{g_j}}\right]-\sum_{j=1}^{M}\frac{\lambda_j W_j}{\mu_j+\mu_k\dfrac{g_k}{g_j}}=\frac{1}{\mu_k},\quad k=1,2,\ldots,M\ .$$

p=0.1%



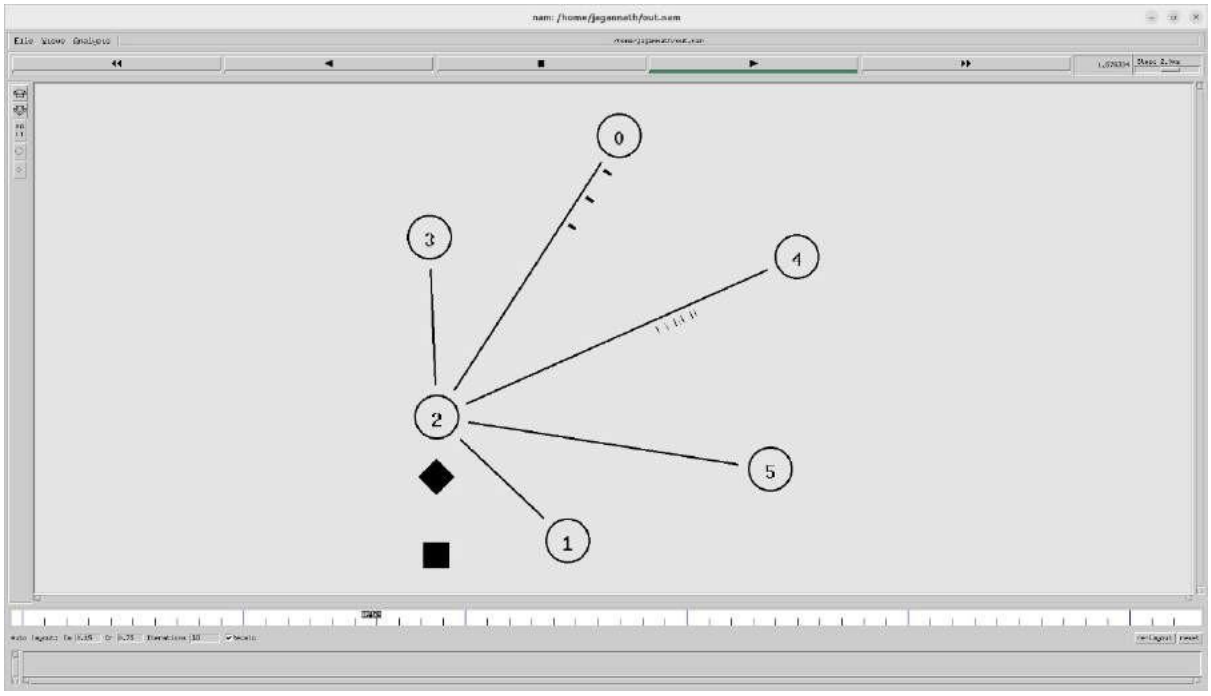
This Shows the given topology of the question the receiver is 0, and gateway is 2.

If p=1%



Then there is a significant increase in the number of packets dropped.

If p=5%



There is a significant increase in the number of packets dropped.

a) Using the given parameters we have B=(1460+40)*8 bits of file size and with this we have a bandwidth of 100Mbps we get

T=(B/w) we get 1500*8/100 = 90ms.

For all the given links,

T1=90ms/0.999

T2=90ms/0.995

T3=90ms/0.99

T4=90ms/0.98

T5=90ms/0.95

Task-2

With the given values of load values we have mean file transfer times as ,

T1=0.75*(90ms)

T2=0.7*(90ms)

T3=0.8*(90ms)

T4=(0.85)*90ms

T5=(0.9)* 90ms