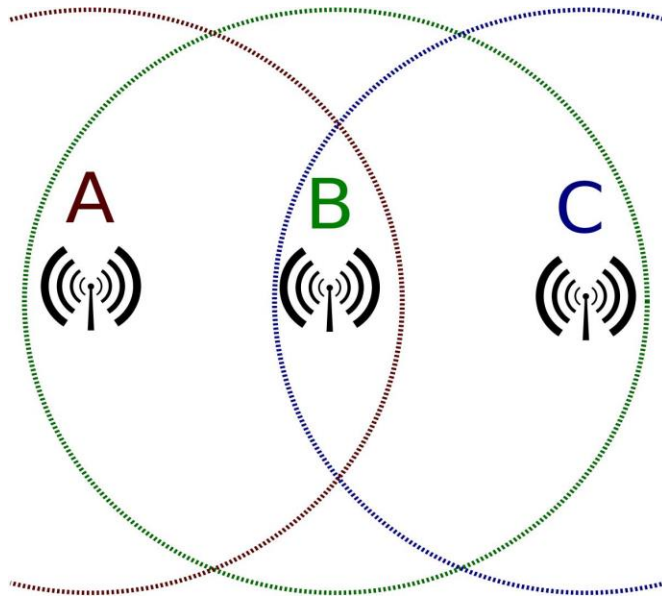


Aim: Illustration of Hidden Terminal Problem using NS2

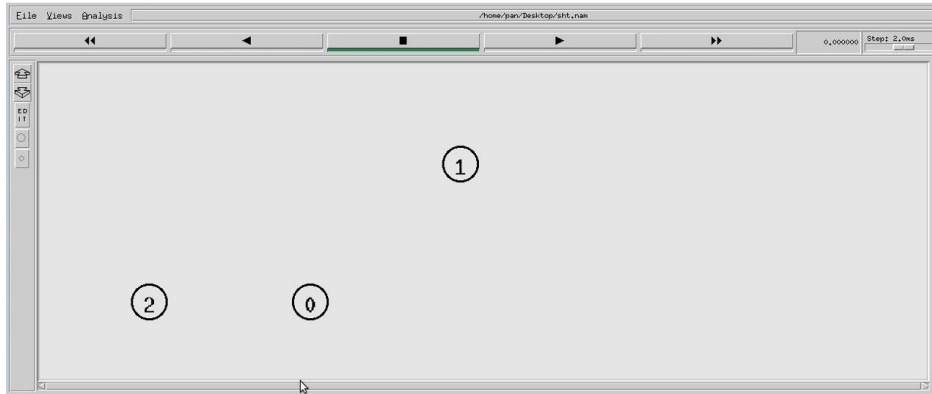
Theory:

Hidden Terminal Problem

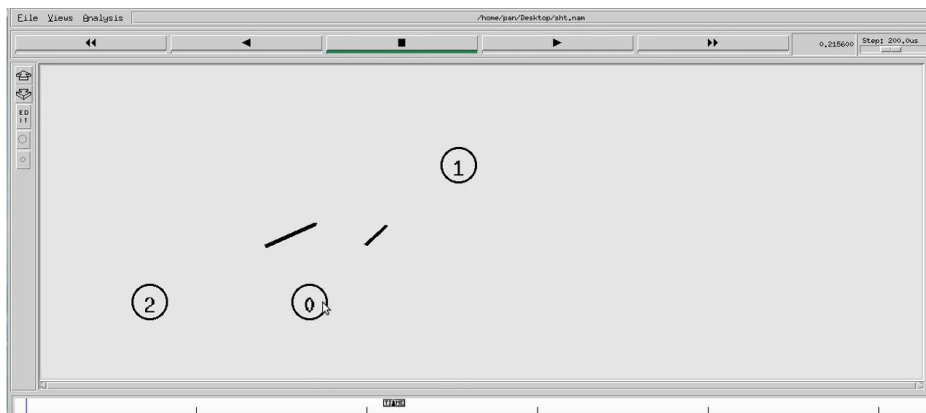


In wireless networking, the hidden node problem or hidden terminal problem occurs when a node can communicate with a wireless access point (AP), but cannot directly communicate with other nodes that are communicating with that AP. This leads to difficulties in medium access control sublayer since multiple nodes can send data packets to the AP simultaneously, which creates interference at the AP resulting in neither packet getting through. Although some loss of packets is normal in wireless networking, and the higher layers will resend them, if one of the nodes is transferring a lot of large packets over a long period, the other node may get very little goodput. Practical protocol solutions exist to the hidden node problem. For example, Request To Send/Clear To Send (RTS/CTS) mechanisms where nodes send short packets to request permission of the access point to send longer data packets. Because responses from the AP are seen by all the nodes, the nodes can synchronize their transmissions to not interfere. However, the mechanism introduces latency, and the overhead can often be greater than the cost, particularly for short data packets.

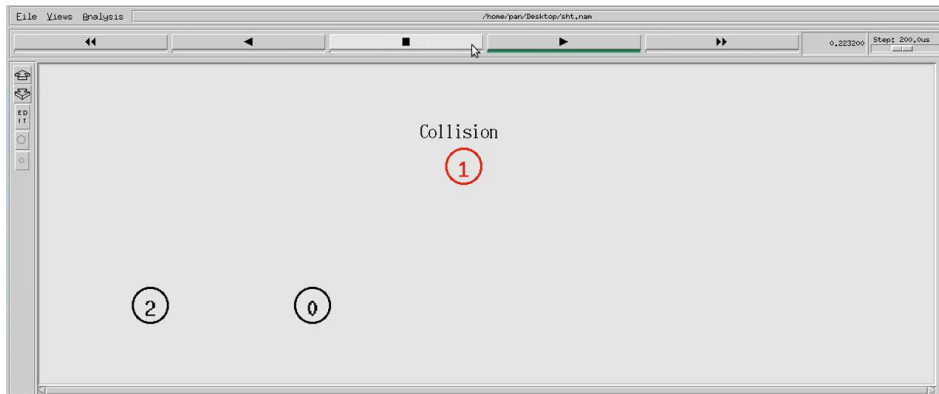
Simulation using NS2



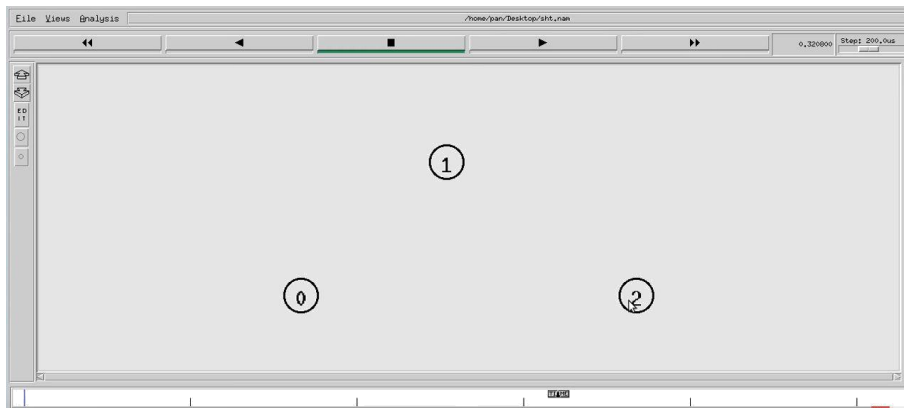
Node 0 and 2 are in range of one another



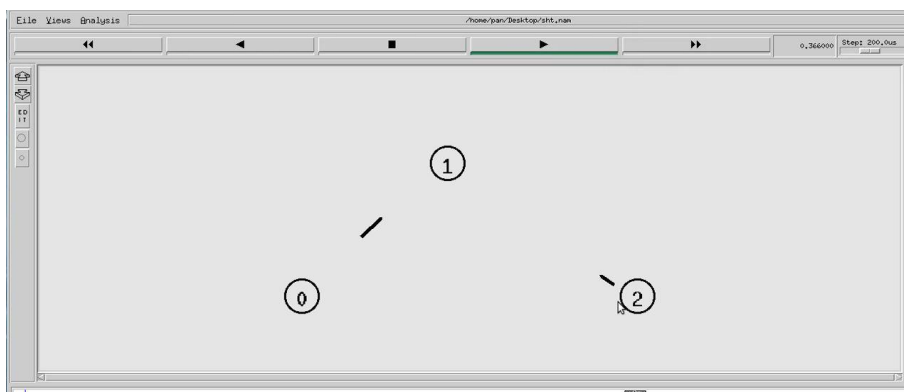
They both sense the carrier channel and send data



Collision takes place and both nodes will know about it



Node 0 and 2 are not in range of one another



Both sense the carrier channel and start sending data



Both wont know about the collision and will keep sending data

Conclusion:

In this experiment, I learnt about the Hidden Terminal problem and simulated it using NS2.

