MP4 Report

The graphs below all have 100 points from 5 to 500 with the increasing step set to 5.

(a)

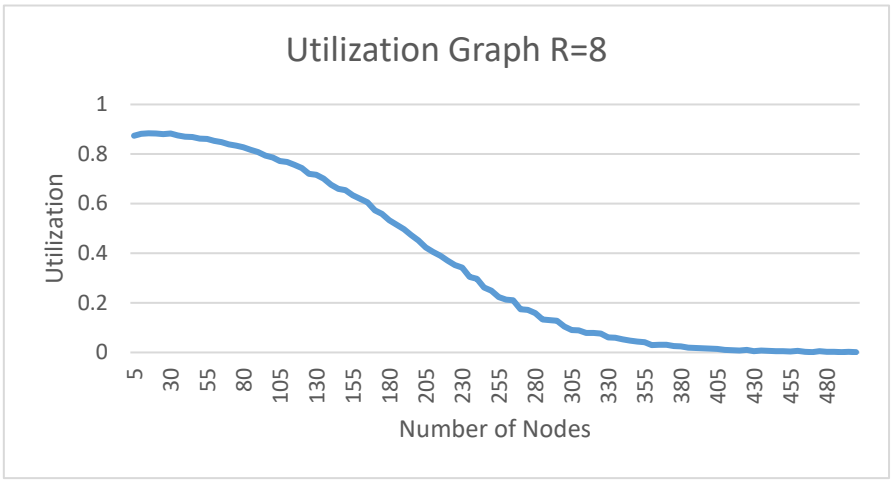

Figure1. Channel utilization with increasing number of nodes

(b)

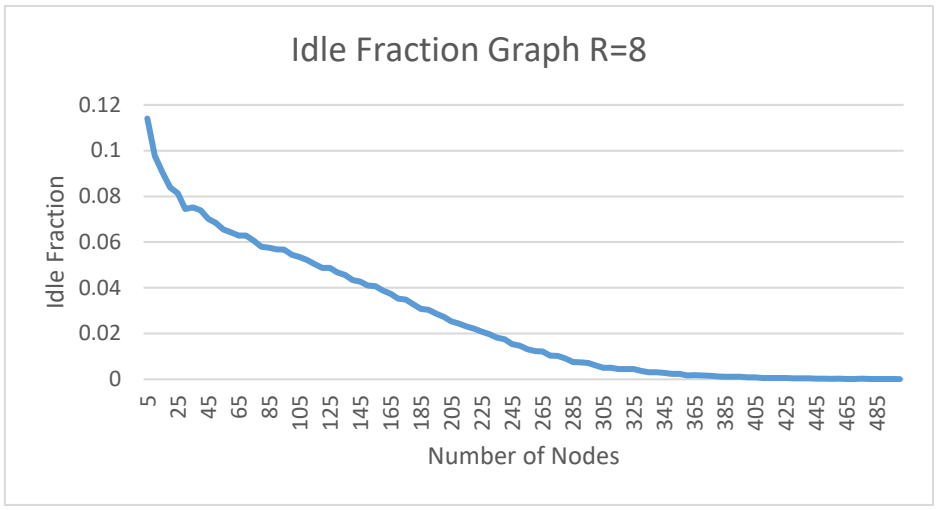

Figure2. Channel idle fraction with increasing number of nodes:

(c)

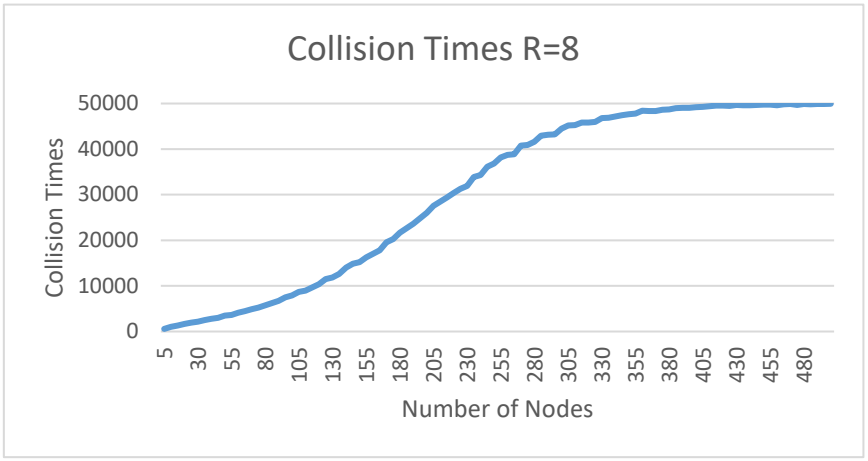

Figure3.The total number of collisions with increasing number of nodes

(d)

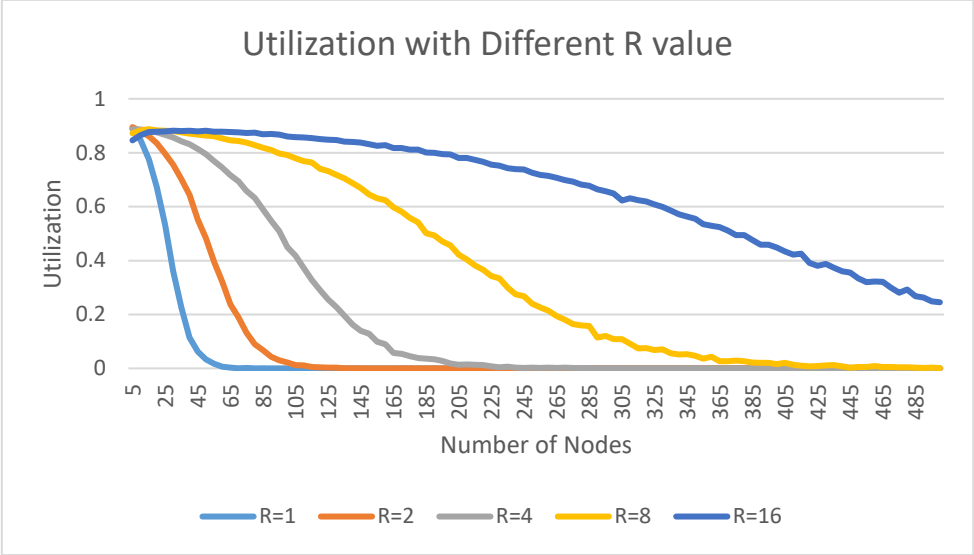

Figure 4. Channel utilization with increasing number of nodes and different R

(e)

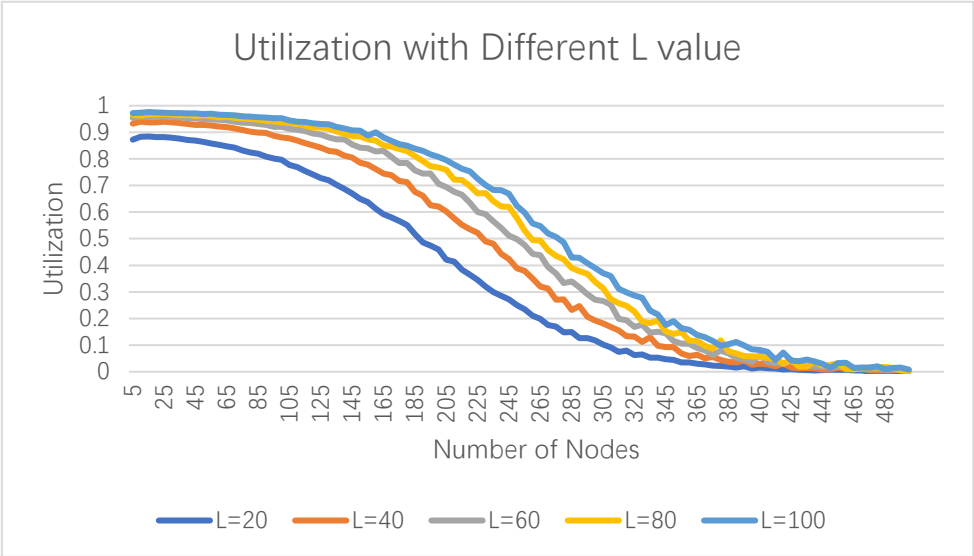

Figure 5. Channel utilization with increasing number of nodes and different L

(f)

Analysis for Figure 4(Channel utilization with increasing number of nodes and different R):

For a single curve, the utilization will decrease as the number of nodes increase. The reason is that as the nodes number increase, more nodes will try to send message through the channel which will cause more collisions and the channel will not be used under collisions.

Among different curves, the utilization will increase as R increase. The reason is that the count down value is a random value between 0 and R. If the initial R value is greater, count down value will be distributed in a larger scale so it is less likely for a node to collide with another node which causes the utilization increase.

Analysis for Figure 5(Channel utilization with increasing number of nodes and different L):

Among different curves, the utilization will increase as L increase but its effect is less than the increase of R. The reason is that when L increases, node sending message will occupy the channel

longer while other nodes will freeze its count down. This will cause less collision times in a given time period. However, the probability of collision will not change, so it has less effect comparing to increasing R value.