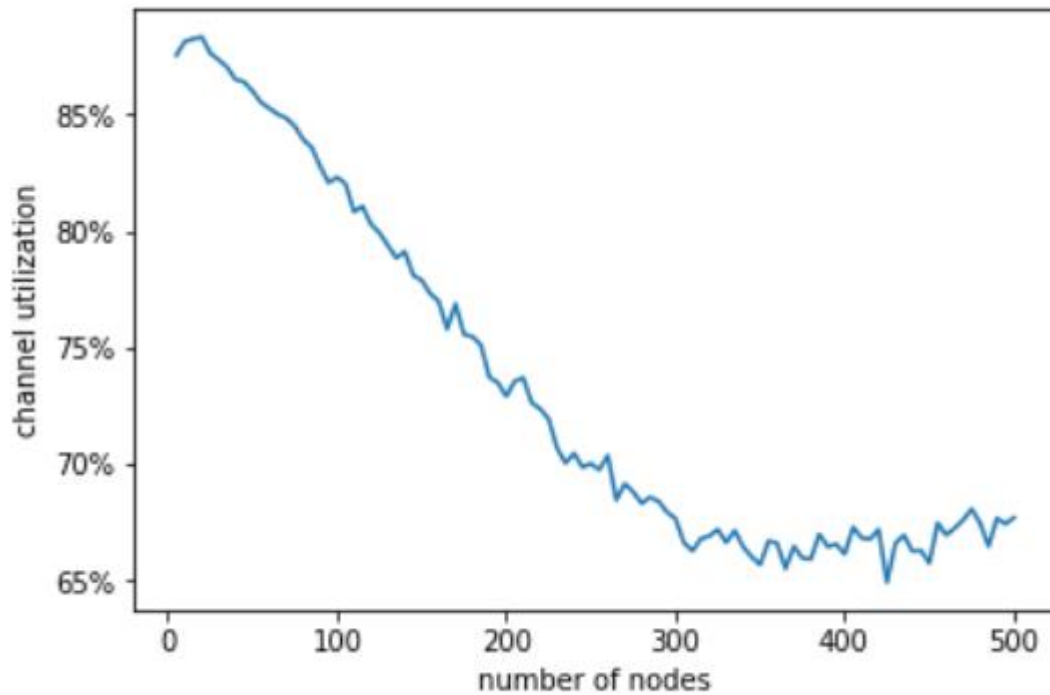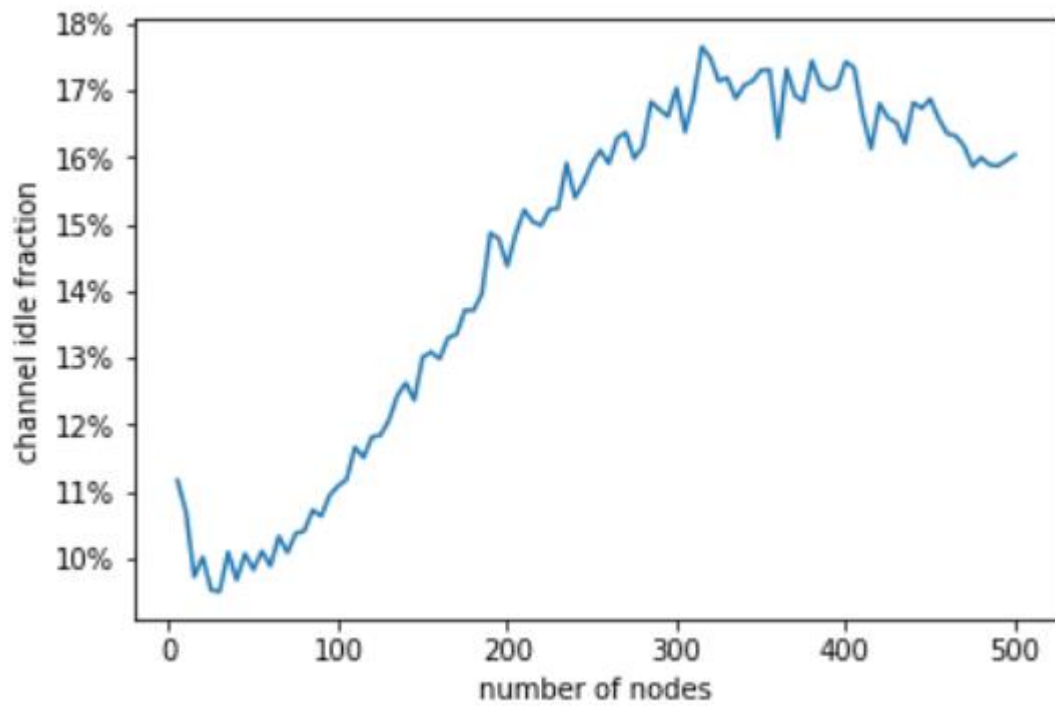# ECE/CS 438: MP4 Ethernet - Analysis

Fall 2018, UIUC

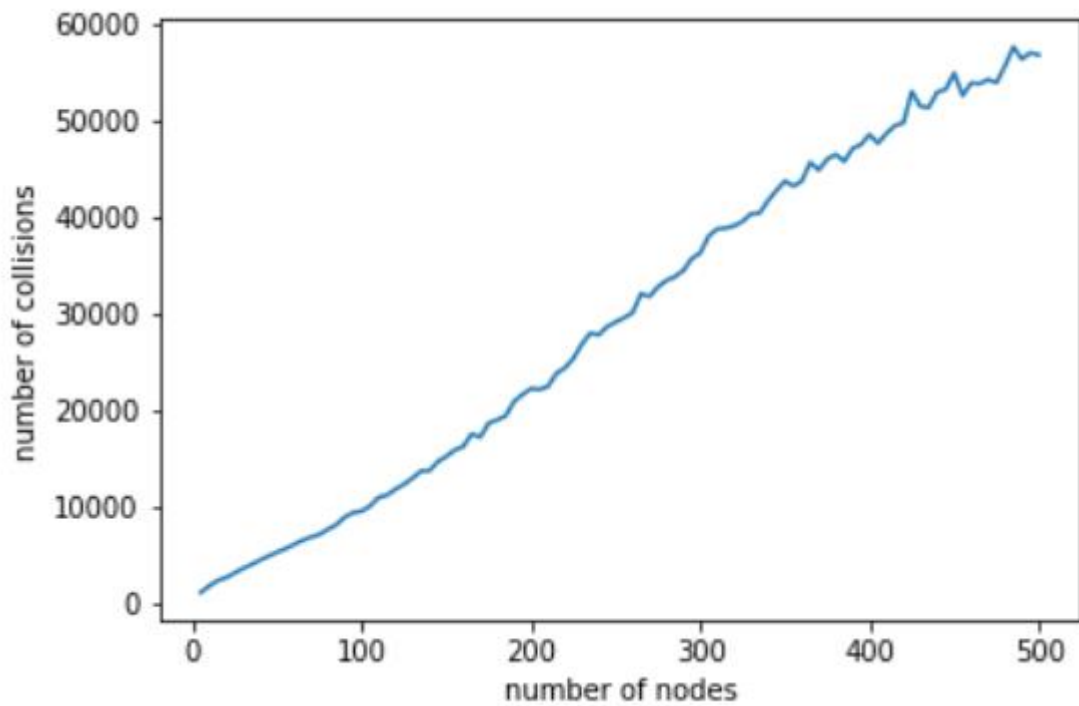Yu Tao (yutao2), Fangwei Gao (fangwei2)

a) With number of nodes increasing, collisions are more likely to happen. Therefore, channel utilization goes down as there are more nodes.

b) with number of nodes increasing, idle fractions goes up as there are many collisions happening, therefore nodes tend to wait a long time before they retransmit the data.
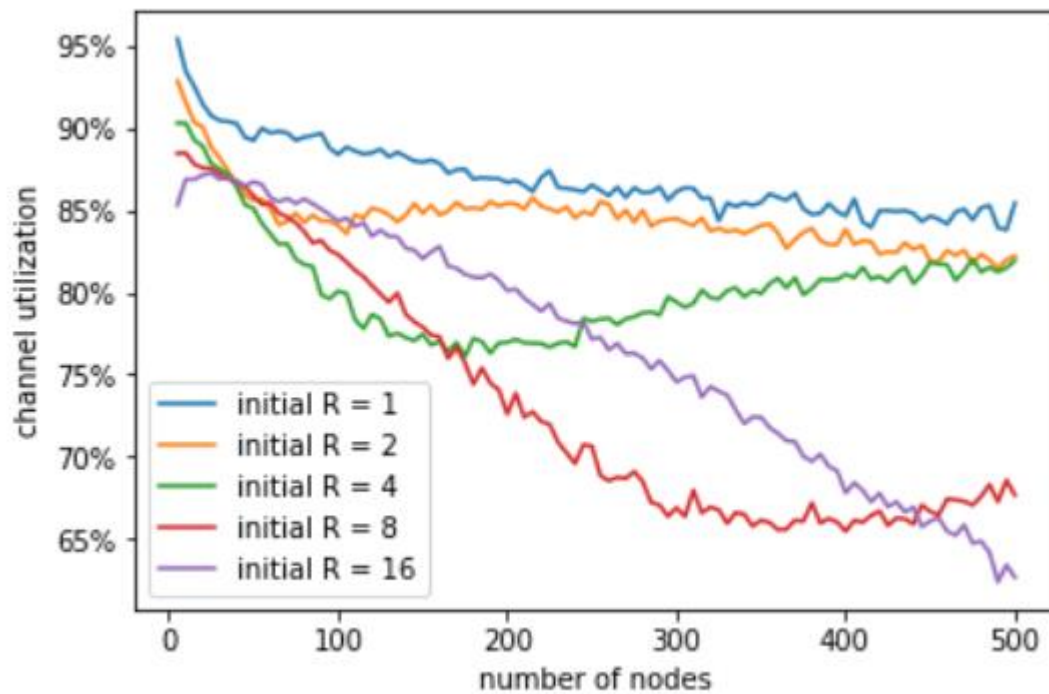
c) Number of collisions goes up as there are more nodes.

d)

With large initial random number range, the nodes are more likely to wait for a long time before they retransmit the data. Therefore we have lower channel utilizations.

e)

With the same number of nodes, if we have a larger packet, the channel utilization will be higher. Because with a larger packet, we would need more time-slots to transmit the data. In this way, we have fewer idle time-slots, in other words, higher utilization. As there are more nodes, we have more collisions and retransmissions. As a result, the utilization goes down.