Sarosh Ahmad
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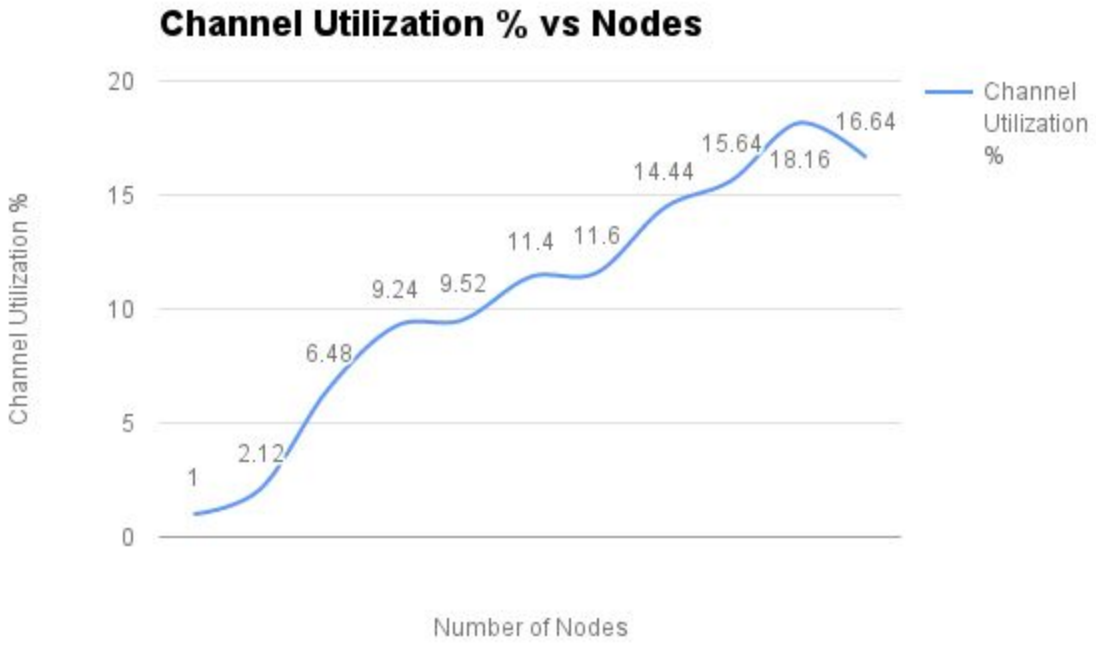
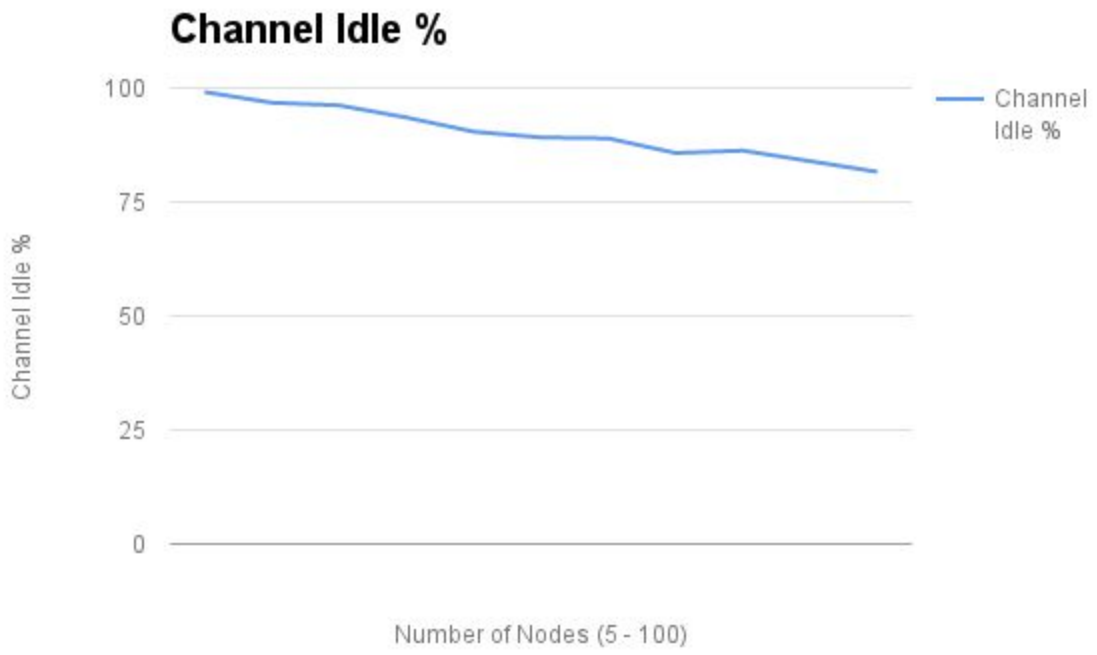
ECE/CS 438 - MP4 Report

A)



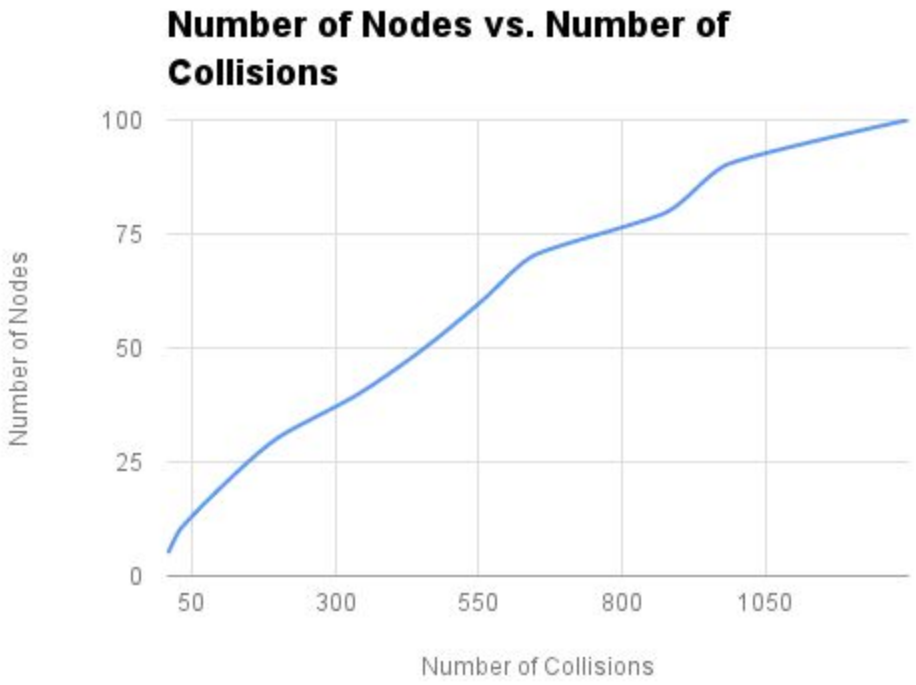
Channel utilization Percent	Number of nodes
1	5
2.12	10
6.48	20
9.24	30
9.52	40
11.4	50
11.6	60
14.44	70
15.64	80
18.16	90
16.64	100

B)



Channel Idle %	Number of Nodes
99.112	5
96.772	10
96.19	20
93.526	30
90.414	40
89.154	50
88.946	60
85.744	70
86.266	80
83.95	90
81.612	100

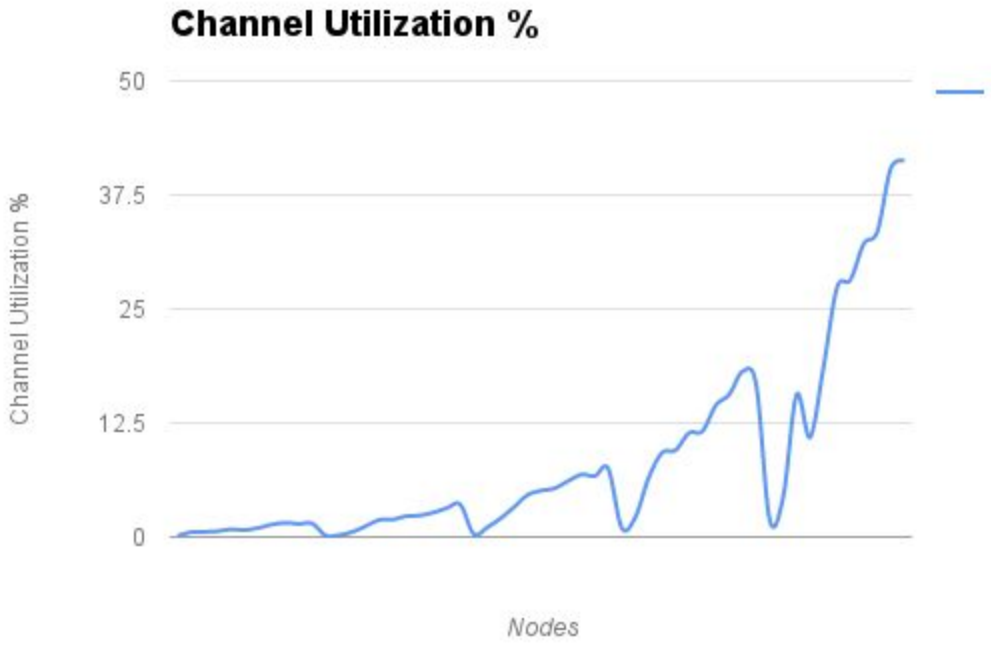
C)



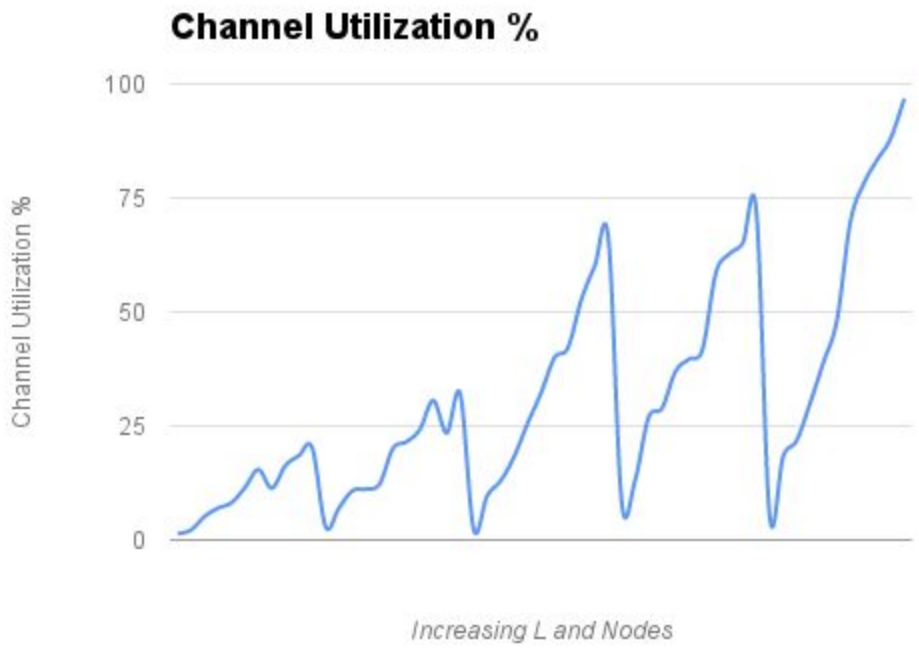
Number of Collisions	Number of Nodes
9	5
29	10
106	20
197	30
342	40
456	50
553	60
642	70
881	80
979	90
1298	100

D)

Note: X axis is in increasing order of R and Number of Nodes. That is, first climb corresponds to R=1, last steepest climb climb corresponds to R = 16 etc. Line falling to 0 means number of nodes reset to 5 for new R.



E) Same note as above.



F)

The above graphs show a proportional relationship between N and CSMA configurations of R and L. In both graphs, there is a steady increase in utilization as more and more nodes are added to the network and as message length and R decrease. This is because both factors impact the probability of collision (they decrease it, despite collisions increasing with more nodes being added to the network).