# Simulation and analysis of wireless network medium access

We have implemented a simulation for the communication of multiple nodes which adheres to the protocol as defined in the question. It outputs a detailed log about what happens in each time slot, including information about retransmissions, queue length, etc.

Testing our simulation with the following parameters:
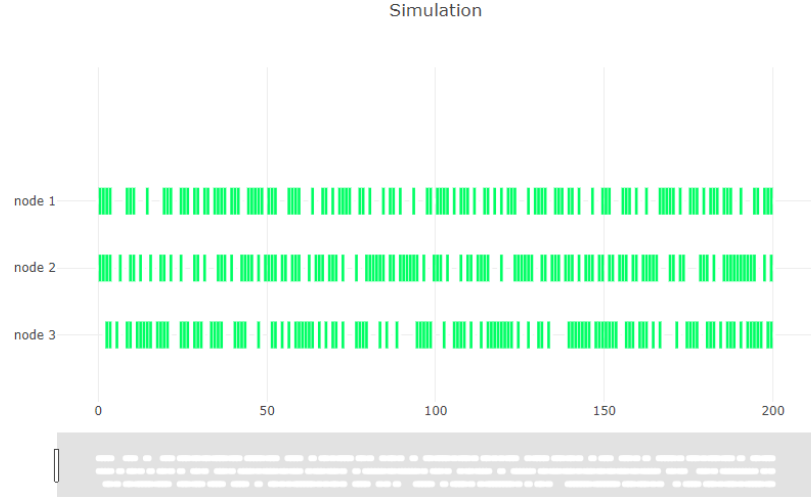
$$for, t = 200, N = 3, p1 = p2 = p3 = 0.1$$

Simulation
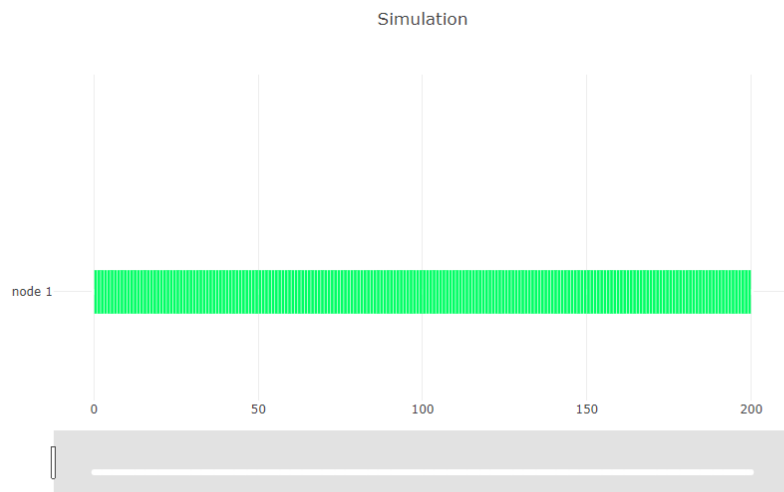
$$for, t = 200, N = 3, p1 = p2 = p3 = 0.3$$
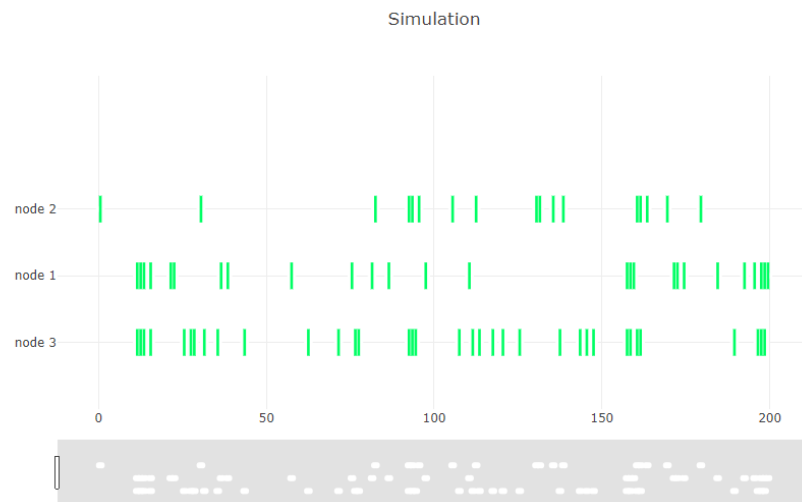
Simulation

$$for, t = 200, N = 3, p1 = p2 = p3 = 0.5$$

Simulation

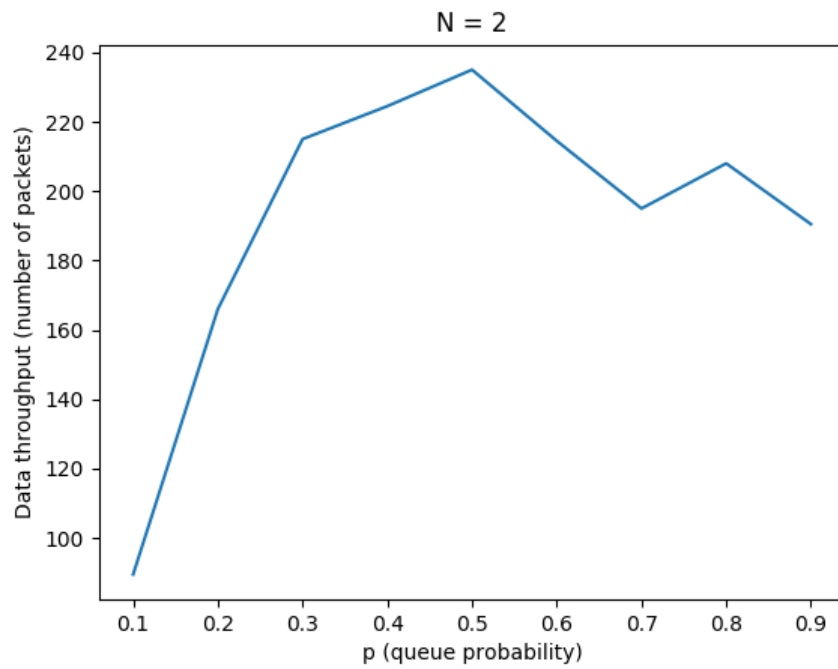$$for, t = 200, N = 3, p1 = 1, p2 = p3 = 0$$

Simulation

Finally, we want to have a closer look at the efficiency of this protocol. Using your existing simulation, create a series of XY plots which show the achieved user data throughput depending on the queue probability. Use the following parameters:
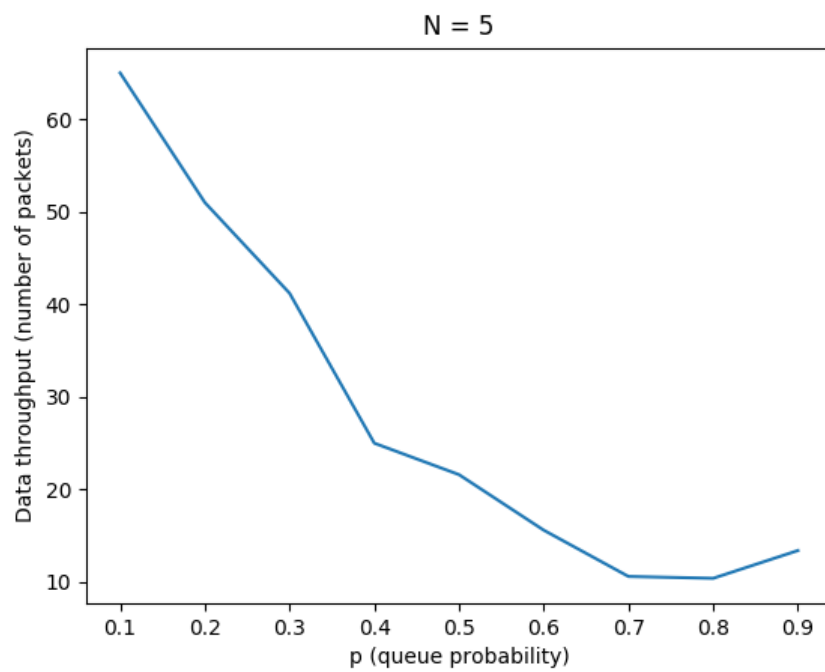
$$t = 1000, N = 2$$

$$t = 1000, N = 5$$

$$t = 1000, N = 10$$

For $t = 1000, N = 2$ we get

For $t = 1000, N = 5$ we get

For $t = 1000, N = 10$ we get

N = 10