Distributed Systems Project Delivery 1

In this project delivery, you are requested to implement Breadth-First Search (BFS) Algorithm. This algorithm should be implemented with TOSSIM simulator. Please measure sent byte count, received byte count and time consumption to construct the BFS routing infrastructure for the networks with 10 nodes, 20 nodes and 30 nodes. Please fill the following table:

	Sent Byte Count	Received Byte Count	Time Consumption
10 nodes			
20 nodes			
30 nodes			

For each of the table entry, please generate 10 different topologies and take the average of these 10 different measurements.

In order to prevent packet collisions a TDMA based approach can be used. In this approach, nodes are assumed to be time synchronized; each node knows the total node count (defined as n) and each node multicasts its packet in its slot. Assume that packet transmission time is defined by t and guard time is defined by g (Guard time is used to prevent packet collisions in case of small errors in time synchronization) and period number is n. Now slot time can be defined as below:

$(id+1)*(t+g) + (p-1)*(n+1)*(t+g)$

For example assume that there 10 nodes (means n=10) and assume that t=10 ms and g=2 ms

Now the below trace will occur:

Period 1 starts

Node 0's Timer is fired at 12 ms.

Node 1's Timer is fired at 24 ms.

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Node 10's Timer is fired at 132 ms.

Period 2 starts

Node 0's Timer is fired at 132 ms.

Node 1's Timer is fired at 144 ms.

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Node 10's Timer is fired at 252 ms.

Please write a report which includes your measurements and their detailed comments. Please include your source codes.

Deadline: 13.May.2015

Submission: This project delivery and its report will be presented in the class.

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