コンピュータネットワーク特論レポート 3

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1 When the transmitting station is sending to the receiving station, any other station that can communicate with the receiving station should not be allowed to send since this can cause a collision.

a. When Station A is sending to Station B, only Station D can transfer frame since D is the only station that can't communicate with Station B.

b. When Station B is sending to Station A, no other Stations can transfer frames since all stations can communicate with A.

c. When Station B is sending to Station C, only Station E can transfer frames since it is the only Station that can't communicate with Station C.

2 At low load, the delay of pure ALOHA is less than that of slotted ALOHA. This is because, during low load there are fewer frames generated and sent during a specified time frame. This results in fewer collisions and retransmissions. In the case of pure ALOHA under the low load assumption, once the a frame is generated, it can be transffered immediately. In the case of slotted ALOHA under the low load assumption, once a frame is generated it can be transferred only at the beginning of a time slot. This wait introduces increases the delay for slotted ALOHA.

Going by the throughput approach, the throughput S for pure ALOHA and slotted ALOHA are Ge^{-2G} and Ge^{-G} respectively in frames per second, Where G is the number of retransmissions per given time frame. During low load, this value can be assumed to be very low. Finding the inverse of this gives a value in seconds/frame which is approximately equal to the delay. After finding the inverse it is seen that the delay of slotted ALOHA is higher than that of pure ALOHA.

3 Let B1 and B2 be the hash table for Bridge 1 and Bridge 2 respectively a. When A sends a packet to G
B1
forward to - 2, 3, 4
B2
forward to -1, 2, 3

b. When E sends a packet to F
B1
forward to - 2, 3
B2
forward to -1, 3, 4

c. When F sends a packet to B
B1
forward to - 2, 3,
B2
forward to -1, 4

d. When G sends a packet to C
B1
forward to - 2, 3
B2
forward to -1, 4

e. When D sends a packet to A
B1
forward to - 1
B2
forward to -4

f. When B sends a packet to F
B1
forward to - 4
B2
forward to -2