**COMP 445 /4**

**Data Communication and Computer Networks**

**Lab Assignment #2**

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| Benoit Kohler | 6398499 |
| Grégoire Morpain | 6398391 |

We have only record packets needed for file transfer.

File size = 232 KB

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Router Drop Rate** | SENDER (sends frames) | RECEIVER (sends ACKs) | SENDER (sends frames) | RECEIVER (sends ACKs) | **Ratio** |
| **Packets Needed** | | **Packets Sent** | |
| 1 | **5%** | 928 | 928 | 1025 | 998 | **1,090** |
| 2 | **10%** | 928 | 928 | 1126 | 1014 | **1,153** |
| 3 | **15%** | 928 | 928 | 1366 | 1176 | **1,370** |
| 4 | **20%** | 928 | 928 | 1459 | 1154 | **1,408** |
| 5 | **25%** | 928 | 928 | 1645 | 1233 | **1,551** |
| 6 | **30%** | 928 | 928 | 1897 | 1304 | **1,725** |
| 7 | **35%** | 928 | 928 | 2203 | 1422 | **1,953** |
| 8 | **40%** | 928 | 928 | 2490 | 1500 | **2,150** |
| 9 | **45%** | 928 | 928 | 2987 | 1690 | **2,520** |
| 10 | **50%** | 928 | 928 | 3742 | 1843 | **3,009** |

Observations:

We can clearly see from the chart that there is a linear relation between the ratio and the router’s loss rate.

Stop-and-wait ARQ is inefficient compared to other ARQs, because the time between packets, if the ACK and the data are received successfully, is twice the transit time (assuming the turnaround time can be zero). The throughput on the channel is a fraction of what it could be. To solve this problem, one can send more than one packet at a time with a larger sequence number and use one ACK for a set.