

Chap 3 Homework 2

Zilong Wang 18281218 CS1804 wangzilong@bjtu.edu.cn

R8. Is it possible for an application to enjoy reliable data transfer even when the application runs over UDP? If so, how?

Solu: Yes. The application developer can put reliable data transfer into the application layer protocol. This would require a significant amount of work and debugging, however.

R10. In our rdt protocols, why did we need to introduce timers?

Solu: Timers are needed to handle losses in the channel. If an ACK for a packet is not received within a period, then it is assumed that the packet is lost. So, the packet is transmitted again.

R11. In our rdt protocols, why did we need to introduce sequence numbers?

Solu: Sequence numbers are used to find out whether the receiver is receiving new data or is it are transmission.

P4. a. Suppose you have the following 2 bytes: 00110100 and 01101001. What is the 1s complement of these 2 bytes?

b. For the bytes in part (a), give an example where one bit is flipped in each if the 2 bytes and yet the 1s complement does not exchange.

c. Suppose you have the following 2 bytes: 11110101 and 00101001. What is the 1s complement of these 2 bytes?

Solu:

a. 00110100

+01101001

10011101

b. *Running checksums at multiple levels throughout the network is not a waste. Because flipped bits can be so easily missed, this redundancy is the best chance of catching errors.*

c. 11110101

+00101001

00011110