

CS 440 Quiz 7

1. What are the four error types that protocols have to deal with?

The four errors are:

- Data errors
- Lost messages and acknowledgments
- Duplicate packets
- Out-of-order packets

2. What does an ARQ protocol do to solve or reduce each of the four error types?

Automatic Request Protocols (including Sliding Window Protocols) use the following methods:

- Data errors - throw it away and let it be resent. Very few use NAK's because the header (including the sequence number) could be corrupt.
- Lost messages and acknowledgments - Use a timer and resend packets if the ACK doesn't arrive in a timely manner.
- Duplicate packets - use a sequence number so that duplicates can be detected and thrown away.
- Out-of-order packets - again use a sequence number so that packets are delivered to the upper layers in the order sent on the other end.

3. What is the purpose of making a protocol connection-oriented?

So that the end points can determine protocol parameters such as window size, flow rate and sequence numbers.

4. What does a sliding window protocol do if a message arrives with an error in it?

Throw it away and wait for the duplicate to be sent. NAK's have problems because the header information could be corrupted meaning that the NAK could be sent to the wrong address or packet data such as the sequence number could be wrong.