Reliable Data Transfer from Kurose & Ross

CS 3171

Protocol	New Features	Problems
rdt 1.0	sends packets	errors
ideal scenario		
rdt 2.0	checksums for error detection	ACK/NAK may have errors
weak stop & wait	ACK & NAK for receiver feedback	
rdt 2 .1	1-bit sequence numbers	ACK/NAK may be lost
alternating bit		wrong packet number
		corrupt packets
rdt 2 .2	send only ACK & sequence #	ACKs may be lost
NAK-free		
rdt 3.0	timers	utilization can be low
robust stop & wait		
rdt 3+	window of sequence numbers	windows may be too large
pipeling/sliding windows	buffer space for N frames	
	goback N	
	selective repeat	

There are more notes on the back of the page

Bibliography

- [1] James F. Kurose and Keith W. Ross. Computer Networking: A Top-Down Approach Featuring the Internet. Section 3.4: Principles of Reliable Data Transfer (pp. 182 207). Addison-Wesley Longman, Inc., 2001. ISBN 0-201-47711-4.
- [2] William Stallings. Data and Computer Communications. Prentice Hall, sixth edition, 2000. ISBN 0-13-084370-9.

Features of Network Protocols

1 Reliability

	Type of Error	Solution
 error detection feedback 	single bitsbursts	ACKs & sequence #s
3. retransmission	• lost transmissions	

Performance

- Simple control message structure
 - NAK-free
 - cumulative acknowledgment
 - fast-retransmit
- Measure of utilization (U)
- Pipelined protocols
 - Go Back N (GBN)
 - Selective Repeat (SR)
- Flow Control
- Congestion Control

Fairness 3