



Some Observations on Assignment 1



Implementation

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- ▶ 13 Groups so far
- ▶ 7 x Java (820, 850, 1000, 1400, 2000 lines of code)
- ▶ 3 x C (700, 730, 1200 lines of code)
 - 2 of 3 compile
- ▶ No C++, 3 missing
- ▶ 2 answers reported incomplete

- ▶ Time for returns and updates until Friday (14.04.2006)



Documentation (1)

Design documentation

- ▶ Half a page to 12 pages
- ▶ Text, PDF (typically LaTeX-based), PostScript, WinWord
- ▶ Variety
 - Text-based lock-step protocol, PUT/GET, seq# 0–999, 3-digit status codes
 - Binary lock-step protocol, PUT/GET, seq# 0–31, ACK/ERROR
 - Binary header, seq# 0–255?, TCP-style flags-based signaling, no errors
 - Binary TCP-style header, seq# 0–65535, message type field (requests + responses) + data bit, session id
 - Binary header, seq# 0–65535, versioning, message type field, no errors
 - Binary header (minimal for data, more elaborate for control), NACK-based protocol with final confirmation, seq# 0–32767, error signaling



Documentation (2)

- ▶ Variety (ctd.)
 - Binary header, 16-bit block number, message + (obscure?) status code
 - Binary header, 32-bit seq#, extra CRC, connection id for multiplexing, little known about protocol interactions and error signaling
 - Binary header, seq# 0–255, explicit connection setup, ACK/NACK scheme using bitmap vectors for packets, error message w/ informative contents (human readable)
 - TFTP-based protocol: binary header + null-terminated string for filename, modified packet size (1024 instead of 512 bytes), simplified error codes
 - Mixed text and binary header: initialization + data packets are binary, ack packets contain text-based acknowledgements



Documentation (3)

- ▶ Some of the observed issues (random order)
 - Implicit and explicit session setup and termination
 - Message flow not always described
 - Format for conveying MD5 hash of file often missing
 - Little or no chance for the responder to notify about errors
 - Disk full, no such file, ...
 - Some diagrams or length fields specified in “bits”
 - Says usually little about timeout values (beyond that they exist)
 - Per-packet checksum in payload
 - (TCP-style) not really needed with UDP underneath
 - Lock-step rules (simple protocols)
 - Imply low RTT to maintain selected transmission rate (noted by some groups)



RTT limiting transmission rate

