

## Packet Loss Detected by the Sender

TCP senders maintain a TCP Retransmission Timeout (RTO) value to determine when it should retransmit a packet that has not been acknowledged by a TCP peer.

If a data packet is sent and not acknowledged, a TCP sender can retransmit the packet using the sequence number of the original packet.

Figure 203 shows an HTTP client resending a GET request after waiting for an ACK for almost three seconds. Another retransmission is resent after approximately six seconds. TCP's backoff algorithm defines that the intervening time doubles for each retransmission attempt until the packet is acknowledged or the sending TCP host gives up.

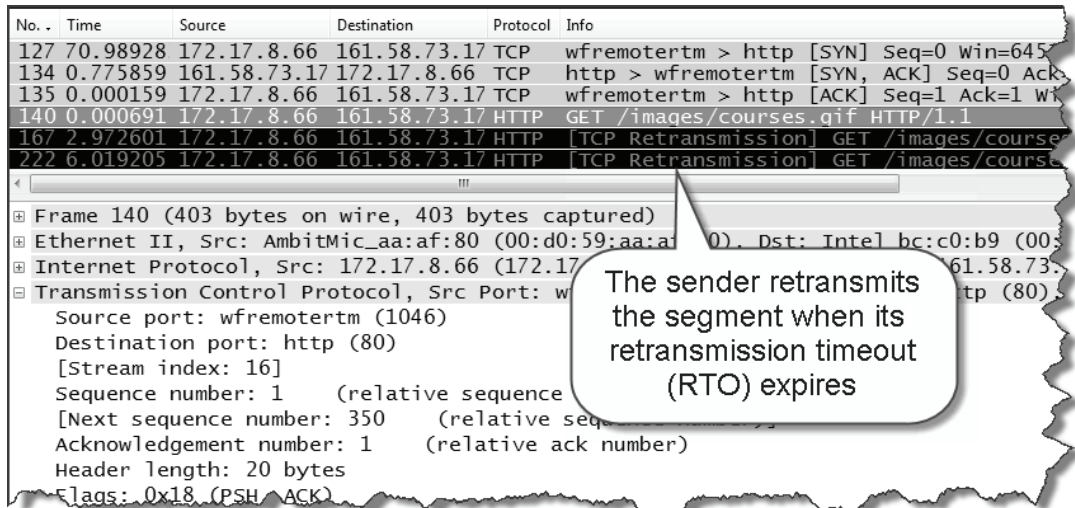


Figure 203. The HTTP server retransmits a packet when the retransmission timeout value is reached

### Move Wireshark Around when Packet Loss is Identified

When taking a trace of the traffic close to the sender, you cannot be certain whether GET requests are not reaching the target or the ACKs are lost upon the return. Consider moving Wireshark further along the path to determine which case is true.

## Improve Packet Loss Recovery with Selective Acknowledgments

Selective Acknowledgments (Selective ACKs) are defined in RFC 2018, TCP Selective Acknowledgment Options. TCP Selective Acknowledgment is used to acknowledge segments of TCP data that have arrived while still defining missing segments. Selective ACK capability must be set up during the TCP handshake process using the TCP options shown in Figure 204.