

CS 555 Paper Summary

Assigned: Fri, Oct 27, 2006

Due: Fri, Nov 10, 2006 *at the beginning of class*
100 points (counts as a program grade)

Paper: Fall, K. and S. Floyd. Simulation-based Comparisons of Tahoe, Reno, and SACK TCP. *ACM Computer Communication Review*, vol. 26, no. 3, (July 1996), pp. 5-21.

Your assignment is to write a 3-4 page summary of the paper *in your own words*. It is *not acceptable* to reproduce sentences or paragraphs from the articles (even if you change a word or two in each sentence). As a part of your summary, you should address the issues brought up by questions given below. The answers to the questions should be integrated as a part of your overall summary and not listed just one-by-one. In fact, your summary should cover much more than just the topics/issues mentioned in the questions.

Your grade will be determined by how well you summarize the article in your own words, how well you address the questions, writing style, and grammar (including spelling). You may submit the assignment either through Blackboard or by handing in a hard-copy.

Your summary should be double-spaced, have 1-inch margins, and have a 12-point font size. Acceptable fonts are Arial, Helvetica, and Times New Roman.

Questions:

1. What is the main performance problem that TCP SACK addresses? What causes this problem?
2. What is the purpose of TCP Reno's inflation of the congestion window during fast recovery?
3. What is the impact of losing a burst of packets when using TCP Reno? TCP NewReno?
4. What is the impact of the "maxburst" parameter in TCP NewReno?
5. In TCP SACK, why does the sender decrement `pipe` by two packets rather than one packet for partial ACKs?
6. In Figures 2-5, what does the spacing between the two large squares for each packet represent?
7. Why does TCP Tahoe not experience a timeout when there are three dropped packets (Figure 4)?
8. In what situation would a TCP Reno sender send three packets in response to a single ACK?
9. In what situation could a TCP Reno sender recover from two lost packets in a single window without experiencing a timeout? What would the congestion window be after successfully recovering from the second loss?