

## Cmpe 475 Term Project

**Deadline:** 14 Jan 2005 14:00

In this project, you are required to perform a detailed comparison of Data Link Layer protocols numbered 5 and 6 given in your text book. Performance criteria for the comparison will be payloads per unit time and number of retransmissions. There are many parameters that one has to consider when assessing the performance of a DLL protocol, some of which are: checksum error rate, lost packet rate, timeout interval, frame processing time, ack processing time, transmission time, and propagation time.

You will conduct a series of simulation runs to understand the behaviors of protocols 5 and 6 under various conditions. In the end you are expected to come up with the conditions under which protocol 5 performs better and the ones that protocol 6 performs better. When designing your simulations you can decrease the degree of freedom by assuming no processing time for frames and acks. Also you can assume a fixed transmission + propagation time for your frames which is indicated by the "send time" parameter in the simulator. Here are a couple of notes to help you in your project:

- You are expected to make an intelligible, detailed enough comment on how you interpret your results based on your knowledge of the implementation details of the protocols.
- Your results should not be based on single runs. Care about statistical significance.
- Produce charts that show the performance of both protocols graphically for varying parameters of your choice.

Simulation tool that you can use is available at the URL <http://vip.cs.utsa.edu/nsf/net/index.html> This tool is provided by Steve Robbins and it is a part of a project that aims at increasing experimentation in undergraduate computer engineering curriculum. Simulation tool comes in the form of java applet in which you can design and execute your runs online or download necessary jar files and do it all offline (which is recommended). You have to experiment with the simulation tool to get some fluency in using it. You can run two independent simulations simultaneously using the tool.

**What to submit:** A detailed enough and well organized report with a content shaped by this project description.