Lab T report

February 12, 2012

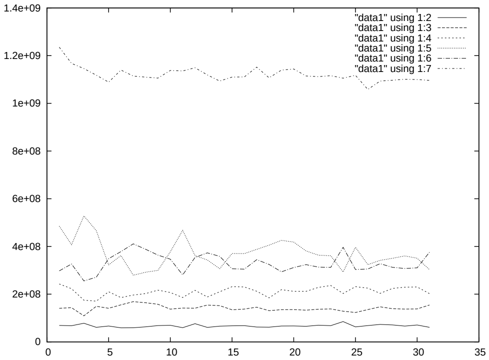
1 Administrative

Team names: Graham Benevelli Jake Wilke
Team uteids: grambo jlw3599
Slip days previously used: 0
Slip days used this project: 0
Slip days remaining:5

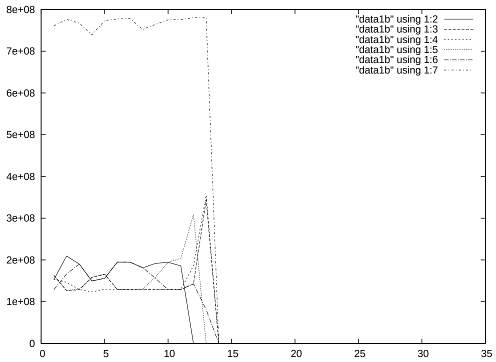
2 Part 1: Basic synchronization

Stats keeps track of the bytes already being sent in an array. When a call to update is made the number of bytes passed is added to the array at the threads flowId. As this goes on $max_{i}dupdatessowedon'tprintouttoomuchinformation.WhentoStringiscalledth$

2.1 Evaluation



It shows that data is being processed at a very high rate, mostly because no bound was put on the data. So more then 2-4 million bytes is transmitted by each thread, giving around a total of 1.2 billion bytes a second.



The graph shows that bytes transmit at almost exactly the same but with a cut off on the total. This test transmitted data until about 15 second then dies and no longer has data to transmit. At the end you see a spike in a few of the treads lines. This is because other threads finish their work early giving the ones left more time with the processor. That way they can transmit a higher rate for a short period of time. What we found was odd because plot1b seems to run at a slower overall rate than plot1.

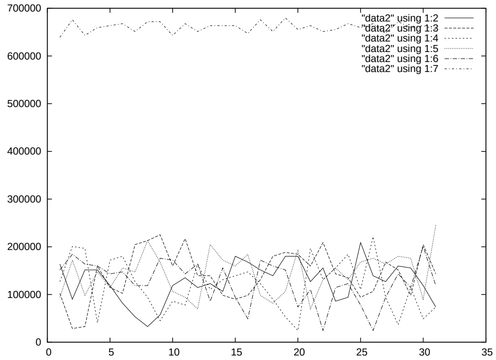
3 Part 2: MaxNWScheduler

We have some synchronization variables to ensure that only one thread is trasmitting data at once and under the correct transfer rate. This is accomplished by used deadlines, calcuated by the alarm thread, that will sleep until the deadline is met. We keep track of these through three integers. We have two methods, waitMyTurn() and signalNextDeadline(), that do the brunt of the work. waitMyTurn() will first wait to see if another thread is sending any data. When current running thread is done waiting, then the it will send a message that a new deadline needs to calculated. The alarm thread will consistently call signalNextDeadline(). When this method is called, it will check to see if any new data needs to be transmitted. If so, then it calculates the next deadline and broadcasts to all other waiting threads.

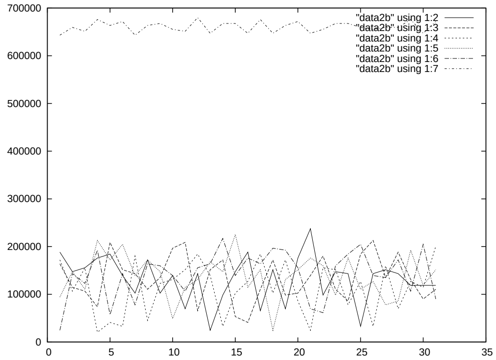
We can sendAndRecv numerous times to view the resulting data. We then spot checked the result to see what and if there were any mistakes.

We came up with two ways of approaching the signalNextDeadline to make sure that there is no rounding error. One used the current time to set the next deadline, this one is safer and simulates a working system better. So keeping at the current time it would sometimes go over the rate. The other way makes sure to round up when over the new deadline is calculated.

3.1 Evaluation



The graph shows four threads all running at about the same speed but at a varying rate. Overall the total amount of bytes transmitted stays below a million bytes a second.



This graph shows the same thing. The four threads run at the same varying rate with an overall rate below a million. But since this graph has a bound the transfer rate drops off at about 27 seconds.

4 Part 2: MaxNWScheduler

At most 1/2 page – Discuss high level design, any issues/known bugs for part 2

Discuss your testing strategy – what tests did you run, what were the results? (Feel free to include graphs in your turnin.) You should provide instructions for the TA to run your tests, but you should also make sure that the results of your runs (graphs, data files, etc.) are in files that will not be overwritten if the TA tries to reproduce your results.

Anything the TA needs to know about when grading part 2? Known bugs? Interesting design points?

4.1 Evaluation

Explain graph; identify/explain any interesting/unexpected/important features

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Insert any other graphs or test results along with discussion/explanation here