ASSIGNMENT 11

NS2 Expansion

In this assignment, we will learn how to add a new module to NS2 and use the same.

Problem Statement C1 (Compulsory; Difficulty level *; 100 points)

Today's objective is to learn the impact of ARQ module on TCP throughput by varying the retry limit and error rate. We first design NS2 modules for limited persistence ARQ protocol (sample code has been provided). Then we configure a TCP link and insert an error module with some error probability.

For knowing how to add a new module, read
http://www.slideshare.net/TBear76/20100317-adding-cc

Or you can also follow these steps:

STEP1: Make a folder in ~/ns-allinone-xxx/ns-xxx/<your_folder> and copy .cc and .h files in <your_folder>
STEP 2: Copy ns-lib.tcl and ns-link.tcl at appropriate locations
STEP 3: Edit *makefile* as described in the given link
STEP 4: Re-compile complete ns2 (using *make* command) and generate object file

After successful addition of ARQ module to your NS2, edit the sample.tcl file to perform the task specified below:

1. Set up a TCP connection between two nodes n0 and n1
2. Make an error model and set its error rate by passing an argument
3. Use link-lossmodel and linq-arq between n0 and n1 with proper arguments
4. Use ftp over tcp and simulate your link

Plot (suggestion: use `gnuplot`) Throughput vs Retry Limit keeping Error Rate at 10 percent. Now increase the Error Rate to 20 percent and plot again. Comment on what you observe.

Problem Statement O1 (Optional; Difficulty level *; 10 bonus marks)

Make retry limit a default parameter and use command ***$ns link-arq $n1 $n3*** without passing retry_limit value.

NOTE:

- The assignment must be uploaded to https://sakai.iitd.ac.in (in certain exceptional cases, the TAs may allow it to be mailed to dslab2013.iitd@gmail.com)
- Submission deadline is 5:30 PM today
- Submit a zip file named assignno_entryno having 2 folders:
  1. CODE: Suitable files associated with the assignment
  2. DOCUMENTATION: .pdf and .tex file of your report

Copying is counter-productive and will be penalized.