

Problem Set #6

ENEE 426, Spring 2008

Due: Tuesday, May 6

NS-2 Problem #1 (30 points)

In this problem, you'll investigate different types of TCP, and their ability to coexist. Using the same script from the last ns-2 exercise (with the 6 nodes, and single bottleneck link), establish two flows of the following configurations (both with FTP applications):

- a. Two TCP Tahoe flows
- b. Two TCP Vegas flows
- c. Two TCP NewReno flows
- d. TCP Tahoe and TCP Vegas
- e. TCP Vegas and TCP NewReno

For each combination, compute the rate achieved by each flow. Answer the following questions:

- a. Present a table of the achieved rates, and attach source code (indicate changes made to a single file, rather than printing 5 copies)
- b. In all the tests, which flow received the highest throughput?
- c. Which version of TCP is the most aggressive?
- d. Which version of TCP is the most passive?

NS-2 Problem #2 (20 points)

In this problem, you'll investigate different types of active queue management. Using the same topology as before, create one CBR/UDP flow at 4 Mbps across the bottleneck link, and one FTP/TCP flow using TCP NewReno. Run simulations where you set the queuing type on the center nodes to each of the following:

- a. DropTail (FIFO queueing)
- b. RED (Random Early Detection)
- c. DRR (Deficit Round-Robin, implements fair queueing)

For each combination, compute the rate achieved by each flow. Answer the following questions:

- a. Present a table of the achieved rates, and attach source code (indicate changes made to a single file, rather than printing 5 copies)
- b. In all the tests, which flow received the highest throughput?
- c. Which queuing type provided the most equality between the two flows?