
Assignment #2

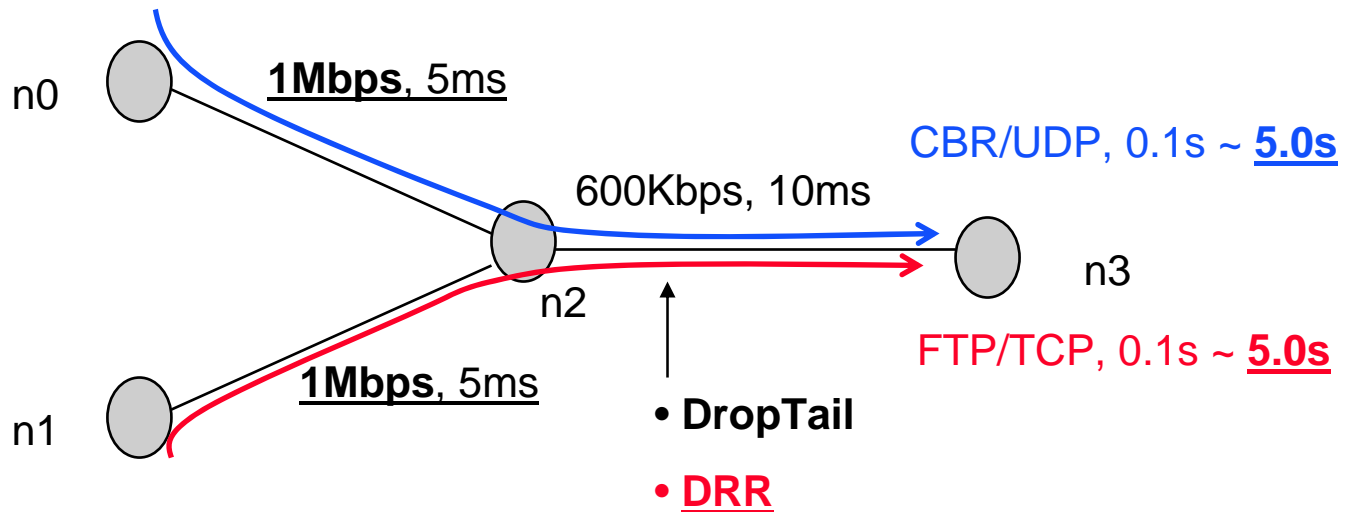
Due **Sunday Sept 17, 11:55pm**

Objectives

- Getting to know ns-2
- Manipulate ns-2 as a black box.
- Configure/Script & run simulations based upon pre-existing ns-2 modules for
 - Transport (TCP, UDP), and
 - Queueing/buffer management (deficit round robin scheduling, FIFO DropTail)
- Collect and interpret results from simulation
- Understand what it means to say that scheme A is better than scheme B using simulation evidence.

Assignment #2

- Scenario: TCP/UDP bandwidth sharing analysis



- TCP is expected to get a lower allocation when FIFO Droptail is used at n2.
- Show this using ns-2 simulation.

Contd...

- By using Deficit Round Robin (DRR) scheduling, we expect to isolate UDP from TCP
 - This should lead to a fairer bandwidth allocation than FIFO DropTail.
 - Show this using ns-2 simulation

Submission

- Write ns2 script for each case (FIFO droptail & DRR) using the topology shown on Slide 3.
- Metric: Percentage of link n2-n3 bandwidth obtained by TCP and UDP respectively.
 - Measure this using ns2 traces (the .tr file) & process it using a Perl/Awk script.
 - Repeat for the two cases (FIFO DropTail and DRR).
- Submit:
 - Ns2 simulation script;
 - Post-processing program to process the trace (eg. Awk, perl, etc.);
 - Your analysis of capacity sharing at bottleneck link n2→n3 of TCP and UDP sources, compared to what one would expect in each case.
- All in text format.
- Due **Sunday Sept 17, 11:55pm**

GRADUATE STUDENTS: Additional Task

- Browse the ns-2 manual and David Harrison's graphing tutorial. You need to be very comfortable with ns-2 for your research project.
- **ns-2**: Briefly discuss the different ways in which the oTcl portion of ns-2 interfaces with the C++ portion (hooks, bindings, tracing, shadow objects, command methods, embedded tcl, instvar etc).
- **Graphing/Animation**: Give an example of when animation more useful in eliciting performance information than what is possible with a collection of graphs? Vice-versa: when would you prefer graphs to animations?
- **Models**: Briefly summarize the various model options available in ns-2 at the transport layer, application layer, routing layer and queue layer.