

Assignment 5

CSL 858

Due date: March 9, 2007 (Friday)

Topics: 802.11

As before, we will refer to the directory `*/ns-allinone-2.*/ns-2.*/` as NS.

1. Consider the file `NS/tcl/ex/wireless-demo-csci694.tcl`. Note that this tcl file uses two other files: `NS/tcl/mobility/scene/scen-3-test` and `NS/tcl/mobility/scene/cbr-3-test`.
 - (a) Explain what each of the following lines of code from the above files accomplishes.
 - i. `set opt(prop) Propagation/TwoRayGround`
 - ii. `$ns_ namtrace-all-wireless $namtrace 500 500`
 - iii. `$ns_ at 51.0 "$node_(1) setdest 221.82 80.85 14.90"`
 - iv. `$node_(1) set Y_ 345.35`
 - v. `set sink [new Agent/TCPSink]`
 - (b) Run the ns-2 simulator with `wireless-demo-csci694.tcl` as input. Then run the nam visualization tool with `694demo.nam` as input. Explain in brief what you observe.
 - (c) Explain what each of the following lines from the `694demo.tr` trace file mean.
 - i. `D 149.94 _0_ RTR IFQ 35 cbr 532 [0 0 0 0] ---- [0:0 2:0 32 0] [0] 0 3`
 - ii. `r 150.11 _2_ AGT --- 60 tcp 1520 [13a 2 1 800] ---- [1:0 2:1 32 2] [7 0] 1 2`
2. Consider the wireless topology consisting of 6 nodes depicted in Figure 1. All nodes use 802.11 as their MAC protocol. Each node has a circular transmission region of radius 250m and transfers data at 2Mbps. The flow $A \rightarrow B$ begins at $t = 25$ s and ends at $t = 75$ s, the flow $C \rightarrow D$ begins at $t = 50$ s and ends at $t = 100$ s, and $E \rightarrow F$ begins at $t = 25$ s and ends at $t = 75$ s. Study the following scenarios using ns-2 and plot the throughput for the different flows over time. Give reasons for what you observe in the plots.

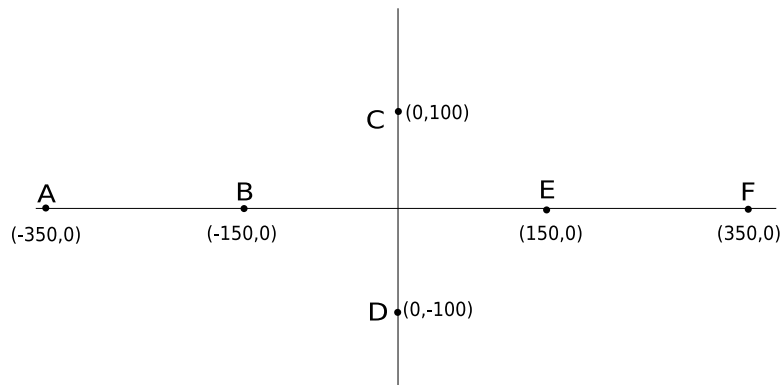


Figure 1: Topology of 6 nodes (1 unit = 1m).

- (a) All flows are CBR-UDP with data rate 0.5Mbps.
- (b) All flows are FTP-TCP.