
Assignment #3B

Probability Ideas & Graphing
(Continued)

Probability/Statistics: Questions

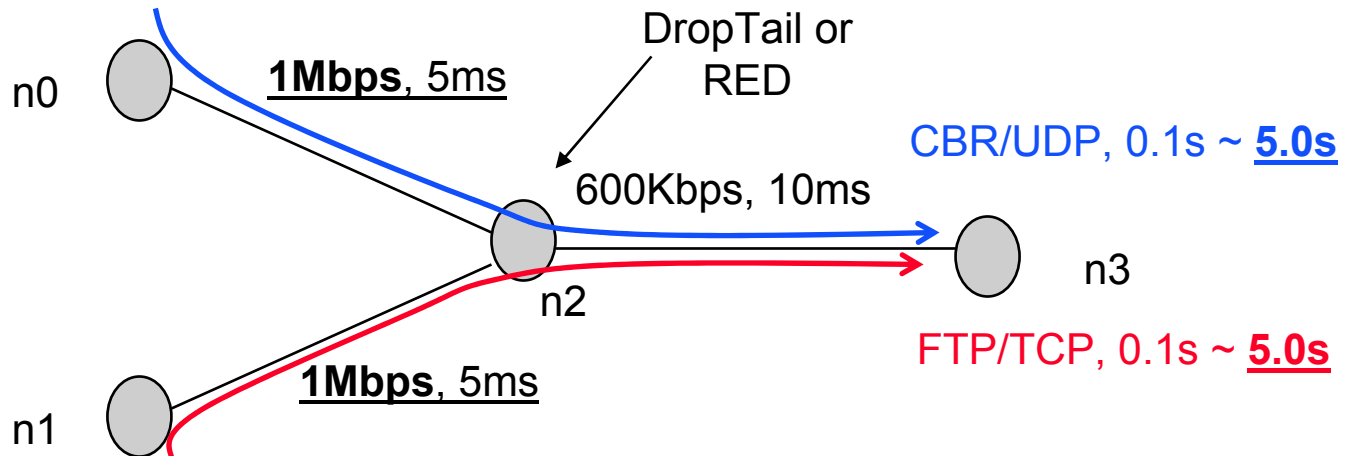
- FINISH UP FROM LAST TIME...
- If two RVs (A and B) are independent, what is $P(A|B)$ in terms of $P(A)$ and $P(B)$? What does the knowledge about the occurrence of B give you in this case?
- What information can you get from a CCDF that is not prominent in a pdf?
- What is the difference between mean, median and mode? When would you use each?
- How is CoV different from covariance and correlation coefficient?
- How are confidence intervals different from hypothesis tests?
- Why is the normal distribution so important?
- State one key implication of heavy-tailed distribution (in internet modeling). Why does poisson modeling fail for internet traffic?

Probability/Statistics: More Questions

- Under what conditions do binomial distributions tend towards normal distribution?
- How are the poisson and exponential distributions related?
- How are normal distributions “standardized”? What is the z-variate?
- Look up $z < 0.45$ in the normal distribution table:
 - <http://www.math.unb.ca/~knight/utility/NormTble.htm>
- In $N(5, 10)$, what is $P(3.9 \leq X \leq 9.8)$?
- When do you use the t-distribution instead of the normal distribution for confidence intervals?
- What is the sampling distribution of the sample variance?
- What extra information does an interval estimate (like CI) give over a point estimate (mean) ?

Recall: Assignment #3: TCP

- TCP Dynamics



TCP Performance: Advanced Graphing

- Distribution of Performance
 - Graph the goodputs of each TCP flow in a histogram.
- Based upon the class discussions, come up with at least one other interesting view of TCP performance and graph it.

ALL Students

- Read the abstract/intro/conclusion of the two papers:
 - WiFi Rooftop Network Analysis paper and
 - BGP Instabilities paper
- Focus on the figures and see the “story they tell” ...
- Write a brief summary about what are the interesting types of graphs used and why they are effective in making the points of the paper.

Graduate Students: Additional

- Read the abstract/intro/conclusion of the two papers:
 - VPN analysis paper
 - Faloutsos power laws paper
- Focus on the figures and see the “story they tell” ...
- Write a brief summary about what are the interesting types of graphs used and why they are effective in making the points of the paper.

Submission

- Write ns2 script to measure TCP (it is a TCP Tahoe) performance.
- Submissions:
 - Answers to probability questions
 - Ns2 simulation script;
 - All the required graphs and statistics.
 - All students: summary of graphing techniques in 2 papers (WiFi and BGP)
 - Grad students: summary of graphing techniques in 2 papers (VPN and Power Laws)
- Due Sunday Sept 25, 11:55pm

Note

- If you want to work on your own machine, you need to install [ns-allinone-2.26](#) and [graphing tool](#).
 - [Talk to Neeraj \(some of these versions may have changed\)](#)
- Example graph tool code (old version):
 - On your machine's directory
~/ns/ns-allinone-2.1b7/graph_v6.0.4/examples/
 - Downloadable at <http://networks.ecse.rpi.edu/~harrisod>
which works with ns-2.1b5 (recommended) or ns-2.1b7-old