CS 268: Project Ideas

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Announcements

- Summary submission method
  - cp laik.jac88.html ~cs268/reviews
  - chmod 755 ~cs268/reviews/laik.jac88.html

- No email summary submissions accepted after today
Simulation Benchmark

- **Motivation**
  - No standard benchmark for many classes of networking protocols:
    - e.g. transport protocols, active queue management, multicast, mobility
  - Prevents understanding of consequences of various approaches

- **Solution**
  - Survey existing papers on a class of network protocols
  - Synthesize benchmark from previous experiments
  - Show validity of benchmark by replicating previous results
Applying Link Bandwidth Measurement to TCP

regular TCP

exit slow start early

loss

retransmission
Applying Link Bandwidth Measurement to TCP

- Two problems with TCP slow start
  - can take a long time if bandwidth and/or latency are high
  - May lose entire window’s worth of packets at end of slow start

- Solution
  - Use bottleneck link bandwidth measurement techniques to determine bottleneck link bandwidth
  - Skip slow start, open window to bandwidth
  - Don’t allow window to exceed bandwidth
Using FEC and Congestion Control

- **Motivation**
  - Congestion losses and delays harm real time applications
  - Forward Error Correction allows trading bandwidth for reduction in loss
  - Congestion control allows hosts to safely consume more bandwidth

- **Solution**
  - Do FEC over congestion control
  - Compare to router based solutions like Fair Queueing
Multipath Transport Protocols

- **Motivation**
  - Many paths between host A and B in current Internet (multiple base stations, multihoming)
  - Don’t know characteristics of paths

- **Which one to use?**
  - Use all of them
  - Must do so with congestion control
  - For $n$ independent paths, get $n \times$ speedup