Media Traffic Generator

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Agenda

- Note well applies!
- Note-takers?
- Traffic model/generators
  - Variability in video
  - Responsiveness to new target rates
- Congestion control design related

RMCAT CC Evaluation

- No Traffic Generator
  - Application generates rates estimated by the congestion controller.
- Media Traffic Generator
  - Application generates rates as close to the estimated rate.
  - Can we make an abstract model of a modern codec?
- Real sequences
  - Applications generates rates based on type of video sequence (codec) and estimated rate by the congestion controller.

Modeling: Variability

- Variation in media bit rate for a given target bit rate?
  - Effects of I-Frame?
- How to model motion?
  - capturing high motion leads to higher than target bit rate, but by how much?
- Any limits on media rates?
  - Minimum video rate?
  - Maximum video rate?

Modeling: Responsiveness

How quickly can the codec generate a

- lower bit rate?
  - From the next frame?
  - At the end of a GoP (I-Frame)?
  - if not immediately, what bitrates (and duration) will it generate before meeting the target bitrate.

- higher bit rate?

Who is in Control?

- Application control vs Congestion control
  - Video and audio frame rate
  - Video resolution

- What is relationship between NACK/ACKs for reliability and congestion control?

- What is the relationship of FEC for reliability and rate probing?
  - Probing by reducing/adding redundancy (FEC)
  - is something like this done? Does this makes sense at all?

Congestion Cues

- Path Chirp: probe for bandwidth by sending additional data packets in a certain pattern.
  - would something link this help?

- Delay and loss: What about other congestion cues?
  - e.g., Decoding rate/goodput, application decode error rate, ECN, PCN, …