Abstract Encoding for Congestion Exposure

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ConEx WG, IETF 83

29 Mar 2012

WGLC generated lots of comments

- Mostly about clarity, document organization and duplication
- My approach
  - Apply all "easy" nits
  - Reorganize introduction to tell a clear **sequential** story
    - Will show it in moment
  - Reorganize body text into the same order as the intro
  - De-dupe the (now adjacent) text
- No significant changes in message
  - Want to revert one passage to beginning of the month
- Already have some new nits

One new technical issue

- Credit, audit, and sanction are under-constrained
- Current draft is not wrong, but not quite sufficient
  - Need a framework to explore the audit design space
  - To justify some (future) high level design decisions
- Plan is to draft new text in isolation (shared google docs?)
- Future decision: Where to place it?
  - Appendix in abstract-mechanism
  - Stand alone document
  - Some other location

A Framework for modeling audit

- Define pedantic algorithms:
  - Sender credit function
  - (Two) hard state single flow auditors
  - Should have provable accuracy properties
- Explore the consequences of relaxing both:
  - Soft state auditors have to be statistical
    - Subject to false hits/misses
  - How does aggregation effect auditing
  - Sanction has to be proportionate to crime
  - Assume sender may underestimate required credit
- What do we need to say or model to assure that independently developed components are compatible?

The story

- Doc describes an abstract mechanism for modeling ConEx
- Existing congestion signal: network->receiver->sender
- ConEx adds a re-feedback signal: sender->network
- To be used to support multiple policy functions
- There is an intrinsic motivation for users to cheat
- Signals must be audited with an appropriate sanction
- Signals are measured by volume
- Important policy functions work in the core (stateless)
- Bytes vs packets must be specified
  - (Slightly older text to be restored)
- Must have proper incentives for all stakeholders
- Not used for fine grained congestion control
- ConEx is a possible mechanism to regulate global congestion

Basic signals and functional units