Using the ECN Nonce to Detect Spurious Loss Events

Idea

- In the absence of ECN marking, a TCP sender expects the Nonce Sum to reflect the correct value
  - Should typically be 0 for retransmits
  - Different value can indicate that the loss event was spurious
  - But what if we expect a 0 Nonce Sum anyway?
    - need to wait for a series of packets to get a reasonably reliable answer

Why?

- Eifel
  - requires timestamps (whose granularity might not suffice?)
- F-RTO
  - cannot detect spurious FR/FR
- DSACK
  - requires DSACK from the receiver, can react later than the others (must wait for ACK from duplicate)

- ECN nonce based detection complements these schemes
  - can sometimes kick in when the others don't

- Easy to implement if you use the ECN Nonce
  - which nobody does?!

That's it

More information:

Michael Welzl: "Using the ECN Nonce to detect Spurious Loss Events in TCP", IEEE Globecom 2008.

http://heim.ifi.uio.no/michawe/research/projects/spurious/