Using the ECN Nonce to Detect Spurious Loss Events

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