Faster Restart

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TFRC for variable application demand

* Application scenario: Interactive communication
  
  When a party is active, endpoint application sends $A$ bits/sec
  
  When inactive, endpoint application sends next to nothing (comfort noise)

* What should TFRC/DCCP CCID 3 do on inactive $\rightarrow$ active transition?
  
  Application wants to instantly return to former rate
  
  TFRC wants to slow start (lost info on network congestion)
  
  Middle ground?
Faster restart: basic idea

* TFRC
  Each nofeedback timer (= 4 idle RTTs) reduces rate by 1/2
  Down to minimum of initial sending rate (2 packets/RTT)

* Faster Restart
  Nofeedback timer mechanism same
  Down to minimum of higher initial rate (4 pkt/RTT, or 8 small pkt/RTT)
  Speed up slow start process: speed up 4 × /RTT, not 2 × /RTT, up to previously achieved rate
**Issues (Vlad Balan, Arjuna Sathiaseelan)**

* What if application goes idle during slow start?

  Solution: Apply faster restart during slow start periods as well as congestion avoidance periods

* What about feedback packets after idle?

  First packet after idle period reports a low receive rate, since that receive rate includes idle period and a partial window
  Would misinterpret this receive rate as ending faster restart

  Solution 1 (TFRC): Ignore first feedback packet after idle

  Is this sufficient? Comfort noise packets, sub-RTT idle periods, …?
Solution 2 (faster restart): Receiver reports length of time over which Receive Rate was calculated; sender may inflate this rate to account for idle periods

Example: Receive rate covers time interval $[T_1, T_2]$

Say sender was idle for a total of $I$ time over that interval

$X_{\text{recv}}' = X_{\text{recv}} \times \frac{T_2 - T_1 + I}{T_2 - T_1}$

Question (Arjuna): What about transmit buffering?

“Idle” means transport is idle (has nothing to send), not application is idle

More to come. For example, Sally disagrees
Next steps

* Further implementation experience