Adapting TFRC to Mobile Networks with Frequent Disconnections



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Mitigating the effect of mobility on congestion control

Motivation

Mobile devices frequently switch

Approach

• Work focusing on the TCP-Friendly Rate Control mechanism

between wireless networks to stay connected as they move

- This creates short disconnections which disrupt data sessions
- •We want to address this issue, focusing on key applications such as VoIP or media streaming • We propose to inform the system about upcoming disconnections, and "freeze" the transport during
 - the switch

- Freeze the connection parameters when a disconnection is predicted
- Upon reconnection, restore the previous parameters and sending rate
- If no error is reported, probe the network to check if better data rates are achievable



†The receiver replaces its loss event history to match the observed X_{recv} .

Additional states are proposed to freeze and unfreeze the TFRC sender.

Results and next steps

 An ns-2 implementation of Freeze-TFRC has been written for DCCP • Simulations show promising results: quicker restart of data transfers and better adaptation to new network capacities



Freeze-DCCP/TFRC significantly improves performance recovery after a disconnection and change of network

• A real implementation will be developed to experimentally validate the results

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From imagination to impact