ETFRC: Enhanced TFRC for Media Traffic

Authors:
Mohammad A. Talaat
Magdi A. Koutb
Hoda S. Sorour

Abstract

The remarkable increase in media traffic over Internet is expected to worsen its congestion state. TCP-friendly rate control protocol TFRC is one of the most promising congestion control techniques developed so far. TFRC has been thoroughly tested in terms of being TCP-friendly, responsive, and fair. Yet, its impact on the visual quality and the peak signal-to-noise ratio
PSNR of the media traffic traversing Internet is still questionable. In this paper we aimed to point out the enhancement required for TFRC that enables producing the maximum PSNR value for Internet media traffic. Firstly, we suspected the default value of Nfb that represents the frequency of feedback messages sent by TFRC receiver to its sender every round-trip time RTT to be the optimum for our goal. Secondly, we managed to modify the mechanism of TFRC by changing this default value of Nfb over a range of values aiming to reach the required optimum. Thirdly, we investigated the effect of such variation over a simulated network environment to study its effect on the resulting PSNR for a number of arbitrary video sequences. Finally, our simulations results showed that running TFRC with Nfb=4 led to reaching the maximum PSNR values among all the examined values of Nfb including its default value. We hereby suggest using an enhanced TFRC that we abbreviated as ETFRC which has the Nfb value set to four as a replacement for the traditional TFRC to enable reaching higher PSNR for media traffic over Internet.

Reference

ETFRC: Enhanced TFRC for Media Traffic

- Zhuonong Xu, Jiawei Huang, and Jianxin Wang, Jin Ye, "An enhanced tfrc protocol based on step ecn marking," International Conference on Communications and Mobile Computing (CMC), Shenzhen, China, April 2010.

Index Terms

Computer Science

 Networks

Key words
| TFRC | PSNR |