Corrections to
"How Does TCP Generate Pseudo-Self-Similarity?"

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In this note we would like to clarify and amend a number of points made in [3].

One of the central points in [3] was that although TCP's exponential backoff algorithm can introduce noticeable correlations in traffic from individual flows, the resulting correlation structure is not self-similarity. The term "pseudo-self-similarity" was used to describe this correlation structure. This term, introduced in [4], was first used in [1] to describe the same correlation structure in TCP flows. An early version of our paper appeared as [2]. In [2], although we pointed out from simulations that the limited retransmission time-out (RTO) in TCP's exponential backoff causes effects only over "limited timescales," we did not make clear that TCP's correlation structure was not self-similarity. Adding this point was the principal improvement in [3] over [2].

In [3] we wrote that [1] "extended our model" which does not credit [1] in two ways. First, [1] was the *first* to correctly and forcefully make the point that the correlation structure is not self-similarity due to limited RTO in exponential backoff. Second, the Markovian model in [1] was independently derived, is more detailed, and can be used to illustrate the correlation structure of both exponential back-off and congestion avoidance phases of TCP.

We regret these inaccuracies in our paper.

1. REFERENCES

[1] D. R. Figueiredo, B. Liu, V. Misra, and D. Towsley. On the Autocorrelation Structure of TCP Traffic. Technical Report UMass-CMPSC-00-55, University of Massachusetts, Amherst, Computer Science Department, November 2000.

[2] L. Guo, M. Crovella, and I. Matta. TCP Congestion Control and Heavy Tails. Technical Report BU-CS-2000-017, Boston University, Computer Science Department, July 2000. Subsequently revised by Technical Report BU-CS-2001-014.

[3] L. Guo, M. Crovella, and I. Matta. How does TCP Generate Pseudo-Self-Similarity? In *Proceedings of the International Workshop on Modeling, Analysis and Simulation of Computer and Telecommunications Systems - MASCOTS '01*, Cincinnati, Ohio, August 2001.

[4] S. Robert and J.-Y. L. Boudec. On a Markov Modulated Chain with Pseudo-Long Range Dependences. *Performance Evaluation*, 27&28:159–173, 1996.