Sweet TCP: Battling the Bottleneck Bufferbloat

Name Surname and Name Surname, *Senior Member, IEEE*

***Abstract*—The transfer control protocol is designed to fill the *pipe* between the source and destination for an efficient use of network resources. As a side effect, TCP also fills in the bottleneck buffer, which is the buffer that precedes the slowest link in the path. Permanently filling the buffer does not offer any performance advantage. On the contrary, permanently full buffers impair the operation of TCP causing excessive delays and timeouts. This problem is known in the literature as bufferbloat. In this paper, we make use of some of the insights developed by the community around the bufferbloat problem to propose a TCP congestion avoidance protocol that fills in the pipe but not the buffer. By continuously monitoring improvements of losses in terms of throughput and delay, Sweet TCP finds ans stabilizes around the optimum operation point that simultaneously maximizes the throughput and minimizes the delay. A simple algorithm that adjusts the contention window is proposed. In contrast with traditional congestion avoidance behaviour, the proposed algorithm reduces the congestion window as soon as symptoms of bufferbloat are detected, and increases the congestion window as soon as bufferbloat disappears.**

***Index Terms*—TCP, congestion avoidance, bufferbloat, delay**

I. Introduction

THIS is a very nice introduction introducing the topics that will be covered in the paper. And this [1] is a reference to the best paper ever written..

II. Keeping the backoff value after successes

Isn't Fig. **??** beautiful?

III. Simulation results

IV. Multiple Readings Scenario

V. Conclusion

Acknowledgment

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References

[1] J. Barcelo, B. Bellalta, C. Cano, and M. Oliver, "Learning-BEB: Avoiding Collisions in WLAN," in *Eunice*, 2008.

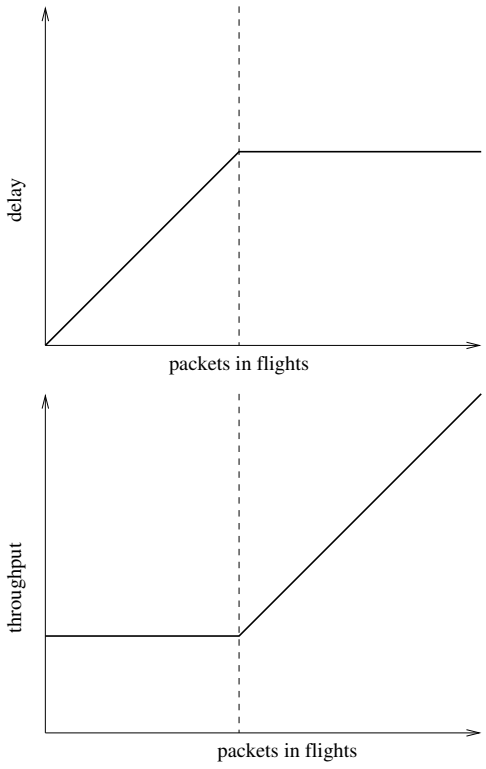

Fig. 1. Typical delay and throughput curves as a function of the size of the congestion window.

The authors are with Universitat Pompeu Fabra. Roc Boronat 138, 08018 Barcelona, Catalunya, Spain. E-mail: joan.melia@upf.edu