

Investigating the Precision of the TSC-based Packet Timestamping

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Abstract— With the emergence of gigabit per second and higher bandwidth networks, software based packet capturing faced severe performance challenges in two areas: lossless packet acquisition at high arrival rate and high precision timestamping. Many research projects proposed hardware based network monitoring solutions in order to eliminate these performance bottlenecks. In contrast, the common microsecond resolution software based packet processing has not been enhanced to meet the measurement requirements of high performance networks. In a previous paper, we already proposed an alternative packet capturing solution that is based on the libpcap library and supports 10^{-9} second resolution timestamping. We are now evaluating the performance of the proposed solution in practice. Experimental evidence shows that our approach represents the inter-arrival times of the incoming packets with a higher precision since the measured time values are generated with a lower overhead and stored in the native resolution.

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