A Performance Study of CPRI over Ethernet

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Abstract

There has been a debate on whether or not Ethernet, a highly cost effective technologies, could meet the strigent latency and jitter requirements imposed by CPRI. To facilitate the discussion, we conducted simulations to understand how Ethernet performs when carring CPRI traffic, with and without newly proposed Ethernet enhancements, namely Ethernet with pre-emption and Ethernet with scheduled traffic.

Our simulation results led to three conclusions: 1) Ethernet alone, with or without newly proposed pre-emption enhancement, could not meet the jitter requirement of $65ns$; 2) the newly proposed Ethernet enhancement of scheduled traffic could lower or even completely remove jitter in most cases, but not always. Further, this enhancement of scheduled traffic appears intrusive, thus requires further careful examination. 3) Ethernet with pre-emption, combined with buffering/re-timing at the edge, could potentially meet jitter requirement by CPRI.