

Bridging the gap: Challenges of deploying Network Coding in the real world

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While many studies have shown the impressive potential of network coding for different research areas, some open problems have to be solved to bridge the gap between information theory and real-world usage. In this talk, we present the unique challenges and lessons learned, which occurred to us while developing a Network Coding proxy. We will especially highlight the problem of excessive padding overhead induced by packets of heterogeneous lengths and show new coding strategies to overcome it. The presented coding schemes can significantly reduce the overhead of transmitted bytes for different generation sizes and packet loss rates without the need for additional communication about packet reconstruction. The shown evaluation results are based on traces of datagram-based real-world applications, namely browsing via QUIC, Skype VoIP, FFmpeg video streaming, and UFTP file transfer.