

Metadata Reduction for Soft Video Delivery

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Abstract—Soft video delivery allows a graceful degradation of video quality matching to user's channel quality. However, existing schemes require a considerable amount of metadata to be transmitted. In this letter, we propose a blind data detection method that recovers video signals from the squared amplitude of received signals, which is almost metadata free. Simulation results show that our proposed method can significantly reduce the metadata overhead, and outperforms the existing soft video delivery scheme by nearly 2 dB. It does not require a time-consuming process to fit signal energy distributions (SED) and video quality can improve gracefully.

Index Terms—Soft video delivery, softcast, metadata reduction, wireless video transmission.

I. INTRODUCTION

WIRELESS video deliveries nowadays are mostly built

matrix to ensure that each packet is of equal importance. Finally, The numerical, scaled values are mapped to constellation points of modulation and transmitted. At the decoder, a linear least Square Error (LLSE) estimator is used to decode the signal. Since all the operations involved are linear, this scheme has the potential to overcome the cliff effect in conventional digital solutions. Users can hereafter gracefully improve their video quality matching to their wireless channel conditions.

In conventional soft video delivery (SoftCast), DCT coefficients are divided into chunks and each chunk uses the same scaling factor according to the mean power of the chunk. In [5], it is shown that the end-to-end distortion strongly depends on the chunk size. If the chunk size is large, the distortion would also be large. If the chunk size is small, the metadata overhead would be large. According