QoS-Guaranteed Wireless Broadcast Scheduling with Network Coding and Rate Adaptation

ABSTRACT

- This work studies QoS-guaranteed broadcast scheduling over wireless networks with network coding and rate selection capabilities, focusing on reducing broadcast completion delay while maximizing the number of packet receptions that satisfy heterogenous deadline and reliability requirements.
- To begin with, a multi-rate graph model is constructed to formulate the optimal broadcast scheduling problem which is proved to be NP-hard.

EXISTING SYSTEM

- Network coding is critical to wireless broadcast for real-time applications.
- Most existing approaches make strong assumptions either on application requirements or on data transmission in order to facilitate formalization and solution.
- Those assumptions limit the applicability of previous approaches.

PROPOSED SYSTEM

- Then, an adaptive graph compression policy is proposed to reduce the computational burden significantly without sacrificing performance.
- Furthermore, an approximation framework is presented for each propagation.
- In the framework, the coding strategy and rate selection can be formulated as a complexity adjustable clique problem.

HARDWARE REQUIREMENTS

- Processor - Intel core i3
- RAM - 2B
- Hard Disk - 20 GB

SOFTWARE REQUIREMENTS

- Operating System : LINUX
- Tool : Network Simulator-2
- Front End : OTCL (Object Oriented Tool Command Language)

REFERENCE

[1] A. Le, A. S. Tehrani, A. Dimakis, and A. Markopoulou, "Recovery of packet losses in wireless broadcast for real-time applications,", 2017.

[2] X. Zheng, Z. Cai, J. Li, and H. Gao, "A study on application-aware scheduling in wireless networks,", 2017.

[3] H. Li, B. Li, T. T. Tran, and D. C. Sicker, "Transmission schemes for multicasting hard deadline constrained prioritized data in wireless multimedia streaming,", 2016.

[4] R. Bassoli, H. Marques, J. Rodriguez, K. W. Shum, and R. Tafa-zolli, "Network coding theory: A survey,", 2013.

[5] S. Katti, H. Rahul, W. Hu, D. Katabi, M. M ´ edard, and J. Crowcroft, "Xors in the air: practical wireless network coding,",2008.