A Summary of Differences between This Recent Advances in Wireless Communication Protocols for Internet of Things Submission and the Conference Version in MSCC 2015

Submission title:

Efficient Network Coding with Interference-awareness and Neighbor States Updating in Wireless Networks

In this new submission, we not only improve the overall presentation and add more discussions based on the feedbacks we have received from MSCC reviewers, but also made a substantial extension to the evaluation part and added new parameter calibrations and proofs. We now highlight the major changes made in this Wireless Communication Protocols for Internet of Things submission:

1) We add a new section (Section 2) to give a brief introduction to the two types of network coding discussed in the later work. The buffer occupation based on these two categories varies, which we discuss them in Discussion Section(Section 9).
2) We add a new section (Section 4) to discuss the issues related to encoding time:
   - We discuss the scenarios that relays turn on network coding to decrease delay resulted from unwilling waiting period.
   - We calibrate the parameters ζ, the threshold to leverage network coding, and θ, the time waiting for coding resource. Discussing these parameters explicitly, our scheme becomes more practical.
   - The added figure (Fig. 3) plots how ω and θ influence network coding opportunities, while Fig. 4 demonstrates the buffer occupation in nodes with various waiting time θ and network load.
3) We add a completely new section (Section 5) to discuss following issues:

- We formulate the number of packets needed to coded together in a transmission in Section 5.1.
- To solve the problem we propose previously, we come up with two combined algorithms (ALOGORITHM 1 and ALGORITHM 2) in Section 5.2.
- We discuss the computational complexity of our scheme compared with existing schemes in Section 5.3.
- In Section 5.4, we calibrate the two parameters that influence the speed of annealing in ALGORITHM 1 with sufficient simulations demonstrated in Fig. 5. Also, we simplify the objective function in Section 5.1.

4) We add a new subsection 6.3 to analyse control frame cost in our revised RTS/CTS.
5) We add some simulations of the effect of deployment density with a new subsection Section 7.4.
6) We discuss buffer occupation management in a new section Section 9, which can be studied in our future work.
7) We add more sufficient theoretical proof on the inherent error ratio in leveraging ETX, which is demonstrated in Appendix Proof of Inherent Error.
8) We thoroughly polish the presentation of the whole paper.