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Bachelor's

When WiFi meets NC: How to set WiFi's data rate in a network coding (NC) scenario

Abstract

Studies have shown that network coding can improve the throughput on a lossy channel. As this is an alternative compared to well known ARQ protocols, the feedback channel for WiFi' rate adaption is gone and and already implemented rate control strategies like Minstrel might not work well with NC.

Content

Aim of this thesis is to study the influence of the NC on Minstrel in the ns3 simualtor. Additionally, an improved algorithm should be implemented and compared to the standard one.

Requirements

* Scientific work * Programming skills C/C++ and one data analysis tool (Python, Matlab, or R) * Interest in simulations

Literature

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* Hongrui Nie, Shaosheng Li, and Yong Liu. 2021. Dynamic Multi-link Transmission Technology with High Reliability based on Link State Awareness and Network Coding. In 17th International Wireless Communications and Mobile Computing (IWCMC 2021) (IWCMC). Institute of Electrical and Electronics Engineers (IEEE), Beijing, China, 1884–1889. https://doi.org/10.1109/IWCMC51323.2021.9498620

* Fumin Zhu, Chen Zhang, Zunxin Zheng, and Ahmed Farouk. 2021. Practical network coding technologies and softwarization in wireless networks. IEEE Internet of Things Journal 8, 7 (2021), 5211–5218.

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