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Queuing Theory Approach for Evaluating Rate of Transmission in Wireless Network Using Network Coding

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Abstract

Due to the rapid development in the transmission of Wireless Network technologies, the need for rate evaluation using network coding demands urgent attention. This is solely dependent on how to improve on high performance communication channels for user's interest. In this paper, an approach of using queuing theory in a wireless network is presented. The idea of network coding in a wireless environment address the transmission of packets not only in unicast form but also address the conflict in packet movement across a channel. Network coding also contributes greatly in computer communication system and other computer based electronic appliances. This means that a source is transmitting packets to a particular destination according to the user's needs in a communication system. Packet transmission is enhanced within the wireless network using queuing theory. In this approach, the first routers are set to be the user access router and another directly connected router is set to be the source router. The user access router is set to connect 11 number of other routers where mainly the network coding is conducted. The results show an improvement in transmission rate by applying network coding as compared to other scenarios where networks coding are not utilized or the conventional routing either.

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