

# **COMPARATIVE STUDY AND ANALYSIS OF MULTIMEDIA TRAFFIC OVER AD HOC NETWORK**

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## **ABSTRACT**

Easy configuration and quick deployment of Wireless Ad hoc Networks make such networks more suitable for various applications including multimedia applications (e.g. VOIP, video conferencing etc). The traffic patterns (video and audio streams etc) generated by multimedia applications are more complicated than those of simple voice and data traffic. The available bandwidth for Wireless Ad hoc Networks fails to meet the requirements of multimedia transmission, which results in packets loss, delay and decrease the quality of transmitted multimedia data. Network Coding is a technique which can be used to overcome such problems over Wireless Ad hoc Networks. In Network Coding technique, it allows a node to combine data (packets) received from different input links, encode received data and send encoded data on its output links (instead of just storing and forwarding). In this thesis work, a variant of Network Coding that is Random Linear Network Coding (RLNC) with Multi Generation Mixing (MGM) is employed for MPEG-4 video traffic. In this work, each sender node encodes packet using RLNC with MGM with the aim to provide more protection to I frames. In MGM, mixing set size number of I packets (Intra frames) are encoded together in one generation and enough number of copies is forwarded over the network. In order to provide more protection to packets of I frames, I packets are encoded with P (Predictive frames) packets in another generation and enough copies of mixed IP packets are generated and forwarded over the network. Similarly, I and P packets are encoded with B (Bidirectional frames) packets and enough copies of IBP mixed packets are generated and forwarded over the network. In this thesis work, simulations are carried out by changing protocol parameters and its effects on network parameters and performance parameters are analyzed. Simulation results confirm with intuition that the performance get enhanced using Random Linear Network Coding with MGM.

**KEYWORDS:** Transmission, Ad Hoc Network, Computer Science