



RESEARCH ARTICLE

Encryption of Data to Prevent Jamming Attacks

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Abstract— In this paper, we address the problem of selective jamming attacks in wireless networks. In these attacks, the adversary is active only for a short period of time, selectively targeting messages of high importance. We illustrate the advantages of selective jamming in terms of network performance degradation and adversary effort by presenting two case studies; a selective attack on TCP and one on routing. We show that selective jamming attacks can be launched by performing real-time packet classification at the physical layer. To mitigate these attacks, we develop three schemes that prevent real-time packet classification by combining cryptographic primitives with physical-layer attributes. We analyze the security of our methods and evaluate their computational and communication overhead.

Key Terms: - Selective Jamming; Denial-of-Service; Wireless Networks; Packet Classification

Full Text: <http://www.ijcsmc.com/docs/papers/April2013/V2I4201365.pdf>