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(57) Abstract :
In an emerging network, secure data broadcasting to a remote cooperative group is always a challenge. Where communication is limited, the dynamics of the sender and fully trusted and dependable key generation provide a significant challenge. The available key management algorithms are incapable of dealing with these issues. Existing paradigms have failed to improve efficiency and security in these types of transmissions. A significant issue in developing such a system is achieving optimal bandwidth utilization and reducing the number of unwanted recipients. In this research, we use a sender-based approach to overcome these constraints and close the gap.This new paradigm combines classic Multicasting with shortest path approaches and group key management. In such a system, the protocol adaptively evaluates the mean delays along all used paths for each source-destination pair and avoids paths with greater or equal mean delays. This finally decreases the use of undesired pathways while also significantly reducing the number of unintentional receivers. This method efficiently handles computation overhead and network resource utilization. Furthermore, our technique improves security by minimizing the number of unwanted recipients.

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