Double Encrypted Data Communication Using Cryptography and Steganography

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Abstract : In information security, secure communication of data across networks has always been a problem at the forefront. Transfer of information across networks is susceptible to being exploited by attackers engaging in malicious activity. In this paper, we leverage steganography and cryptography to create a layered security solution to protect the information being transmitted. The first layer of security leverages crypto- graphic techniques to scramble the information so that it cannot be deciphered even if the steganography-based layer is compromised. The second layer of security relies on steganography to disguise the encrypted in- formation so that it cannot be seen. We consider three cryptographic cipher methods in the cryptography layer, namely, Playfair cipher, Blowfish cipher, and Hills cipher. Then, the encrypted message is passed through the least significant bit (LSB) to the steganography algorithm for further encryption. Both encryption approaches are combined efficiently to help secure information in transit over a network. This multi-layered encryption is a solution that will benefit cloud platforms, social media platforms and networks that regularly transfer private information such as banks and insurance companies.