

SECURING THE EMAIL PROVIDER APPLICATION USING WEB-BASED AES-128 AND RC4

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ABSTRACT

Information technology utilizes internet media for information exchange, enabling communication and data exchange without distance and time limitations. In everyday life, many activities depend on information technology, including the use of email applications that are capable of writing and sending files. Data security in email applications is an important aspect that services must pay attention to to protect user information from being targeted by cyber attacks. One of the mail server providers, namely G-mail, has provided message encryption facilities where the key is sent via short message. However, there is a problem, namely that there are no cellular numbers available for Indonesia. This research focuses on developing a web-based email provider application security system using the Advanced Encryption Standard (AES-128) and Rivest Cipher (RC4) algorithms. The main objective of this research is to evaluate the effectiveness of the combination of the two algorithms in protecting user data during the email message sending process. The research process involves stages of needs analysis, system design for implementing both encryption and decryption algorithms, as well as system performance testing. The test results show that the integration of the AES-128 and RC4 algorithms is able to provide a level of security with satisfactory performance for use in web applications, demonstrated by a success rate of 100%. The success of this implementation makes a significant contribution to the development of email application security technology.

Keywords: *Email, Data security, Cryptography, Advanced Encryption Standard, Rivest Cipher*