Abstract

The rapid progress in the internet requires multiple message communication over the wider
area to improve the mobile network security. Due to the multiple message communication, the
security is a most important concern in mobile network. The bilinear Certificate less Aggregate
Signcryption Scheme guarantees the security under several attacks, and therefore provides
security and non-repudiation. However, the multiple messages through a single operation are a
difficult task to improve the network security. In addition, multilinear map based signcryption
scheme provides the confidentiality and authenticity but it is complicated for handling when
number of messages gets increased rapidly. In order to overcome the problem in multiple
message communication, Exponentiated Multilinear Vectorized Certificateless Signcryption
(EMV-CLSC) technique is introduced. The EMV-CLSC technique is used to verify the multiple
messages through a single Signcryption process. An efficient certificate less signcryption
technique performs the multiple message communication between senders and receiver to
ensure the network security. In EMV-CLSC, the multilinear vectorized model is applied for
handling the high volume of data and multiple data format while distributing the message
simultaneously. This helps to reduce the memory consumption while processing the multiple data. The proposed EMV-CLSC technique provably improves the security with public key verifiability and cipher text authenticity. Based on, the authorized users only access the network and the messages are protected. At last, the Broadcast message is secured using Digital Signature verification in uncryption process. A certificate less signcryption process with multiple bits is used to highly secure the multiple messages using EMV-CLSC technique. This helps to protect the messages against the attacks and improve the mobile network security. An experimental result shows that the proposed EMV-CLSC technique improves the network security in terms of computational cost, memory consumption, communication overhead and secured message distributing rate compared to the state-of-the-art works.

References


**Index Terms**

Computer Science

Security

**Keywords**

Mobile network security, Certificateless scheme, Signcryption, Multilinear vectorized model,
multiple message communication, signature verification.