Improving cloud security model for web applications using hybrid encryption techniques

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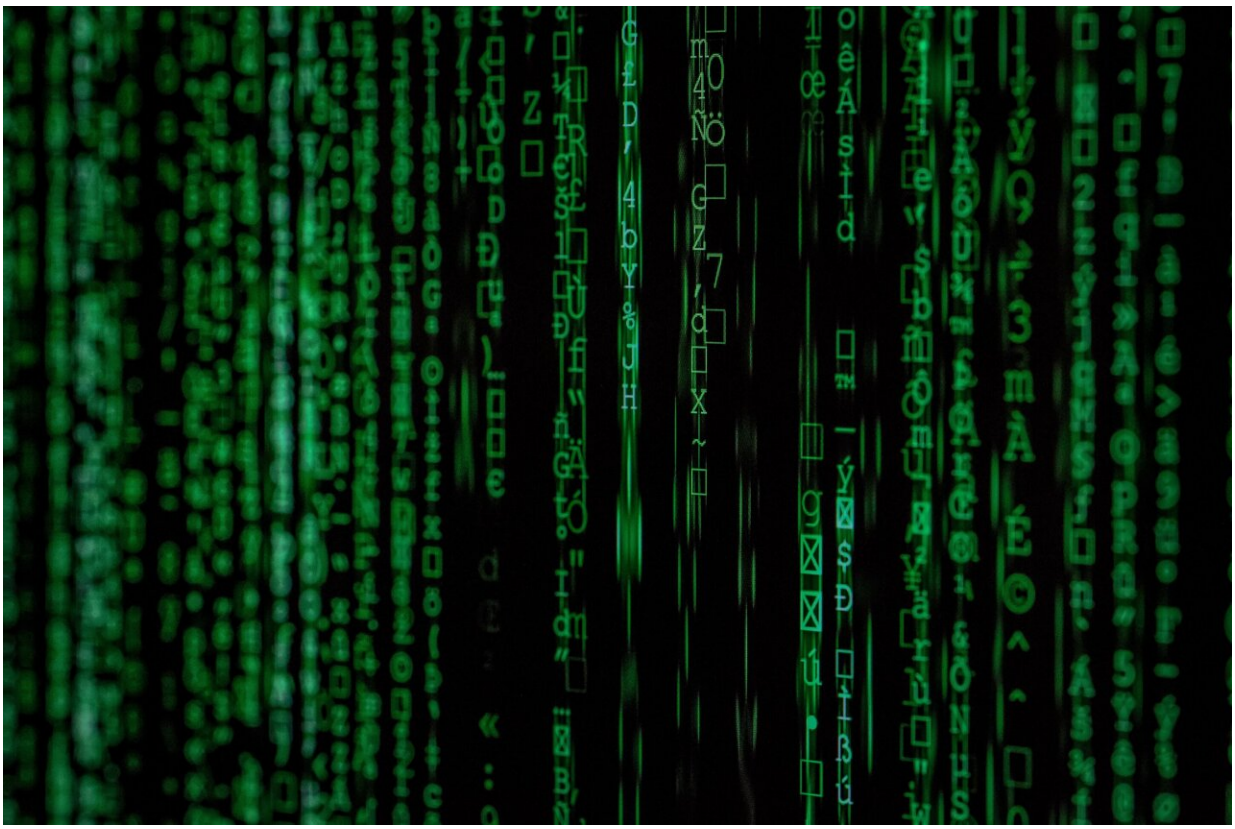

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Research published in the *International Journal of Internet Technology and Secured Transactions* uses a hybrid approach to boosting the security

of online applications, particularly within the realm of cloud computing. By merging two distinct techniques—homomorphic encryption and the squirrel search algorithm (SSA)—the study demonstrates a significant enhancement in the security of cloud computing models.

Homomorphic encryption is a form of encryption that allows mathematical operations to be performed on encrypted data without first having to decrypt data. This means that computations can be carried out on encrypted text to yield useful results that, when decrypted, match the results of the same operations as if they had been performed on the plain text.

The SSA is a nature-inspired optimization algorithm that mimics the dynamic foraging behavior of flying squirrels. It's classified as a metaheuristic algorithm, meaning it solves problems iteratively using randomness and guided search instead of using a conventional approach.

R.S. Kanakasabapathi and J.E. Judith of the Department of Computer Applications at the Noorul Islam Centre for Higher Education in Kumarcoil, India, hoped to boost cloud data storage systems using an advanced encryption technique. Encryption obviously plays a key role in safeguarding data from unauthorized access or breaches.

The team has assessed the effectiveness of their approach, measuring upload and download time and encryption and decryption time. They demonstrated that the hybrid approach outperforms the Rivest-Shamir-Adleman (RSA) and ECC-based cryptography.

Ultimately, minimizing encryption and decryption times while maximizing data protection and so ensuring the integrity and confidentiality of cloud-stored information is critical. Given that there are ongoing concerns surrounding the security of cloud computing and ever-expanding volumes of data being stored and processed in the cloud,

innovative approaches are needed to safeguard that data as each wave of malicious actors comes to the fore who might compromise or illicitly access that data.

More information: R.S. Kanakasabapathi et al, Improving cloud security model for web applications using hybrid encryption techniques, *International Journal of Internet Technology and Secured Transactions* (2024). DOI: 10.1504/IJITST.2024.136677