A NOVEL IMAGE ENCRYPTION APPROACH FOR CLOUD COMPUTING APPLICATIONS.

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Abstract:

The cloud technologies have a great impact on everyday life with different ways, including cloud computing, cloud database, cloud storage and cloud collaborations. In this perspective, digital data exchange has grown at astonishing rate and many applications have been appeared mainly in the telemedicine and industrial process. In the light of this, information security becomes a vital component in data storage and transmission. To acquire high level security via cloud technologies leads to overwhelmed the limitations encountered in the methods used in data protection.

Different security techniques have been used to provide the required protection. The security of digital images has become more and more important especially when transferring these data in an insecure medium such as the cloud computing environment. The security of digital images has attracted more attention recently, and many different image encryption methods have been proposed to enhance the security of these images.

Image encryption techniques try to convert an image to another one that is hard to understand and image decryption retrieves the original image from the encrypted one. There are various image encryption systems to encrypt and decrypt data, and there is no single encryption algorithm satisfies the different image types.

The current image encryption algorithms often transfer the original image into a noise-like image which is an apparent visual sign indicating the presence of an encrypted image. The security system based on the fractional Fourier transform (FRFT) is protected by only a certain order of FRFT.

In our project, we proposed a novel method to encrypt an image by using new special transform combined with Fractional Fourier Transform (FRFT) instead of Discrete Fourier Transform (DFT).

We expect to analyse the image encryption based on double random phase matrix. The implementation of both techniques will be realized for experimental purposes. Detailed results in terms of security analysis and implementation should be demonstrated. Comparative study with traditional encryption algorithms will prove the efficiency of our proposed technique

Index terms: Cloud computing, Telemedicine, Image encryption, Fourier transform, Simulation results.