**PROJECT:**

Cloud based biometric security for organizations

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**ABSTRACT:**

The demand for remote data storage and computation services is increasing exponentially in our data-driven society; thus, the need for secure access to such data and services. In this paper, we design a new biometric-based authentication protocol to provide secure access to a remote (cloud) server. In the proposed approach, we consider biometric data of a user as a secret credential. We then derive a unique identity from the user’s biometric data, which is further used to generate the user’s private key. In addition, we propose an efficient approach to generate a session key between two communicating parties using two biometric templates for a secure message transmission. In other words, there is no need to store the user’s private key anywhere and the session key is generated without sharing any prior information. A detailed Real-Or- Random (ROR) model based formal security analysis, informal (non-mathematical) security analysis and also formal security verification using the broadly-accepted Automated Validation of Internet Security Protocols and Applications (AVISPA) tool reveal that the proposed approach can resist several known attacks against (passive/active) adversary. Finally, extensive experiments and a comparative study demonstrate the efficiency and utility of the proposed approach.