Abstract

Authenticating users and establishing their identity is the first most part of any computer based application or website. This has to be the most significant point from the security aspect. With the emergence of cloud platforms and their services, our interaction with data, devices, software and applications is witnessing an unprecedented change. This issue of user authentication tops the list of threats posed by the cloud computing paradigm. In most of the applications, users are supposed to remember multiple passwords and usernames for different services offered by Cloud Service Providers (CSP's). The rise in brute force attacks makes this username-password scheme weak and thus users and organizations expect that there are
multiple parameters to be passed before the user actually gets authenticated and his identity is established. The development of such two tier schemes indeed enhances the security but right now it is in its early stages. Techniques such as use of Biometrics like fingerprinting, iris scanning, face recognition methods, hardware based approaches like One-time-passwords (OTP), hardware tokens and bypass methods are being proposed by researchers and industry professionals and are under continuous developments and improvements. On the lines of two tier component authentication, this paper proposes a simple, convenient & secure hardware based two tier technique using Universal Serial Bus (USB). Our proposed model provides solution to the limitations posed by the hardware based OTP scheme where a user is supposed to enter a pin or password, received on their mobile handset, on the web portal of the Cloud Service Provider. In this way, our scheme defies the possibility of a phishing attack and brute force attack by any intruder of stealing that OTP or pin and misusing it.

References

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Index Terms

Computer Science  Security

Keywords

Authentication  Multifarious  Usb  Cloud