



CryptoChronicles

LessPM's Quest to a Passwordless Utopian Ecosystem

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Executive Summary

Test[lol]

Abstract

Introduction

Polybius' *The Histories* [4] contains the first documented use of passwords, describing how the Romans employed “*watchwords*” to verify identities within the military. This provided a transparent, simple way to allow or deny entry to restricted areas of authorized personnel only. The story of secret writing (in this context referenced as cryptography) goes back the past 3000 years [2], where the need to protect and preserve privacy between two or more individuals blossomed.

Fernando J. Corbató is widely credited as the all-father of the first computer password when he was responsible for the Compatible Time-Sharing System (CTSS) in 1961 at MIT [3]. The system had a "LOGIN" command, which, when the user followed it with the command "PASSWORD", had its printing mechanism turned off to offer the applicant privacy while typing the password [1]. Given the long history of passwords and their importance, one could argue that it was a natural and judicious step in the evolution of computer systems.

In today's digital landscape, utilizing various identifiers (such as usernames, email addresses, or phone numbers) combined with passwords has become a prevalent method for verifying an individual's identity and ensuring their authorization to access restricted materials.

In 2004, a study titled "*The Memorability and Security of Passwords*" [5] was conducted into advising users on the entropy of passwords and ways someone can use to remember a or multiple passwords. A typical standard for larger organizations with a form of password creation system, is to emphasize diversity of smaller and capitalized characters, length, and not be commonly referred to in a dictionary [5]. The study analyzed the effectiveness of different password creation strategies, suggesting that acronym-based passwords offer a delicate balance between memorability and security.

However, as technology has advanced, the limitations of password-based authentication have become increasingly apparent, leading to the development of more sophisticated methods like Universal Authentication Framework (UAF) and WebAuthn through the Fast IDentity Online (FIDO) Alliance.

This report delves into the implementation of LessPM, a password manager that leverages WebAuthn to provide a secure authentication experience, free from constraints of traditional passwords, while placing a strong emphasis on security. By examining recent advance-

ments in authentication mechanisms and the related innovative potential of WebAuthn, we hope to illuminate the prospects of a passwordless future in digital security.

Methodology

Conclusion

Future work

Through implementing LessPM, we aimed to create a barebone implementation that could serve as a reliable Minimal Viable Product (MVP). However, we recognize that more work is needed to further enhance and compliment the product. These topics are listed below and briefly discussed as a way to highlight drawbacks of the current version of LessPM.

► Authorization Headers

References

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