



Identity Management using Mobile Devices

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Introduction

The focus of this research is on Identity Management (IdM, in short) with mobile devices. Mobile devices like Smartphone, Tablet, PDA, etc. are becoming an integrated part of our lives with their ever increasing ubiquitous presence. Nowadays, they represent a major way of accessing the Internet, and the only way in many parts of the world. Current Smartphones and Tablets have powerful processing capabilities with intuitive user interface features. We will explore their use to make identity management easier and more usable in a privacy-preserving way. Mobile devices are also easy to lose and so we will investigate ways of preventing identity theft and maintaining privacy if the device falls into the wrong hands. Finally, we will investigate the security aspects of using a mobile device for authentication.

Motivation

- ❑ There are currently more than 5 billion mobile phone connections worldwide [1].
- ❑ Peoples are increasingly using mobile devices to access critical and multi-modal online services.
- ❑ Current architectures lack the flexibility to take advantage of the ubiquity of mobile devices and to offer more intuitive services.
- ❑ Therefore, a research on IdM with mobile devices is crucial as well as timely.

Research Questions

- ❑ The current state of the art on IdM research.
- ❑ The advantages and restrictions imposed by the inclusion of mobile device factor in the current Identity Management architectures.
 - ❑ Incorporating the new factors into the existing architectures.
 - ❑ Considering the security, privacy & usability issues while designing new systems.
 - ❑ Future research direction on Identity Management.

Objectives

- ❑ A solid mathematical model of identity and its related properties considering the mobility factor.
- ❑ Designing a secure, usable, privacy-friendly & context-aware IdM architecture based on the mathematical model.
- ❑ Designing an intuitive UI for mobile devices.
- ❑ Finding the right balance among usability, privacy, accountability, security and interoperability with respect to IdM.

Challenges

- ❑ Highly dynamic landscape of Identity Management.
- ❑ Context-insensitivity of the current Identity Management architectures.
- ❑ Designing an intuitive UI for the tiny screen of mobile devices to enable natural selection of partial identities.
- ❑ Interoperability issues with several existing Identity Management architectures.
- ❑ Secure and regular backup of sensitive data as mobile devices are prone to theft and loss.

Conclusions

Designing a secure and privacy-friendly Identity Management is itself a challenging task. Inclusion of the mobility factor into it imposes new challenges and opens doors for exciting opportunities. This project aims to shed some lights on the topic by carrying out stimulating and novel research.

References

- [1] BBC Report on mobile phone connections, 9 July 2010. Available: <http://www.bbc.co.uk/news/10569081>