Guest Editorial

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A new wave of security research is providing theoretical insight and practical techniques for dealing with new vulnerabilities originating from increased application mobility and dynamic set-up of business processes. This special issue contains some high quality research contributions, each focusing on an emerging trend in security and privacy research which is likely to have a high impact on business evolution.

1. Introduction

In the past few years, information and communication technology (ICT) has become an integral part of the work and entertainment experience of billions of users worldwide. Besides supporting the evolution of traditional business processes, ICT has opened business opportunities for new services, such as the ones exploiting information about users location, proximity and behavioral patterns. New computational paradigms have gained acceptance, such as mobile and service-oriented computing. Being able to reconcile high-quality information and services with privacy and security is now a key factor for business success. Data protection is particularly important: without robust techniques for access control, privacy preservation and controlled knowledge sharing, the new service-based computation paradigm may not develop its full potential. Some of the papers originally presented at *DBSEC'06*, the working conference of IFIP WG 11.3, perfectly captured these emerging research trends. After intense (and stimulating) discussion at the conference, *DBSEC'06* best papers' authors were invited to develop their research further and to submit new papers to the *Journal of Computer Security*. A new round of refereeing was carried out, whose result is this special issue of *JCS*. It brings together five papers, each presenting foundational research on an open research problem in security or privacy.

Gaining access to remote systems often requires giving away information on ourselves: the paper "A privacy-aware access control system" provides the foundation of a new generation of access control systems where information disclosure can be kept under control, while the paper "Notarized federated ID management and authentication" provides techniques for scalable, secure management of user identities.

Large-scale ICT platforms show increasing complexity which has multiplied their vulnerabilities to new types of attacks. The paper "Implementing interactive analysis of attack graphs using relational databases" presents some (much needed) novel analysis techniques.

Ubiquitous computing technologies, with their mobile and wireless interfaces, have become widespread before all the security problems they pose could be identi-fied (let alone solved); the paper "Efficient security policy enforcement for the mo-bile environment" describes an innovative enforcement framework capable of meet-ing the strict performance constraints typical of mobile environments. Finally, the paper "Preprocessing for controlled query evaluation with availability policy" shows how efficient protection of data and other resources can only be done via policy-aware preprocessing techniques. All these papers tackle problems that are highly relevant the future of our society and economy. Also, I like to think that they retain some of the liveliness and appeal to non-specialists typical of the *DBSEC* conference series unique environment.

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